

# **Resultados Finales del Análisis de Riesgo y su validación para el Complejo Polilla y Gorgojo de los Andes en el Valle del Mantaro y Huancavelica**

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Pablo Carhuapoma

Jan Kreuze

2020

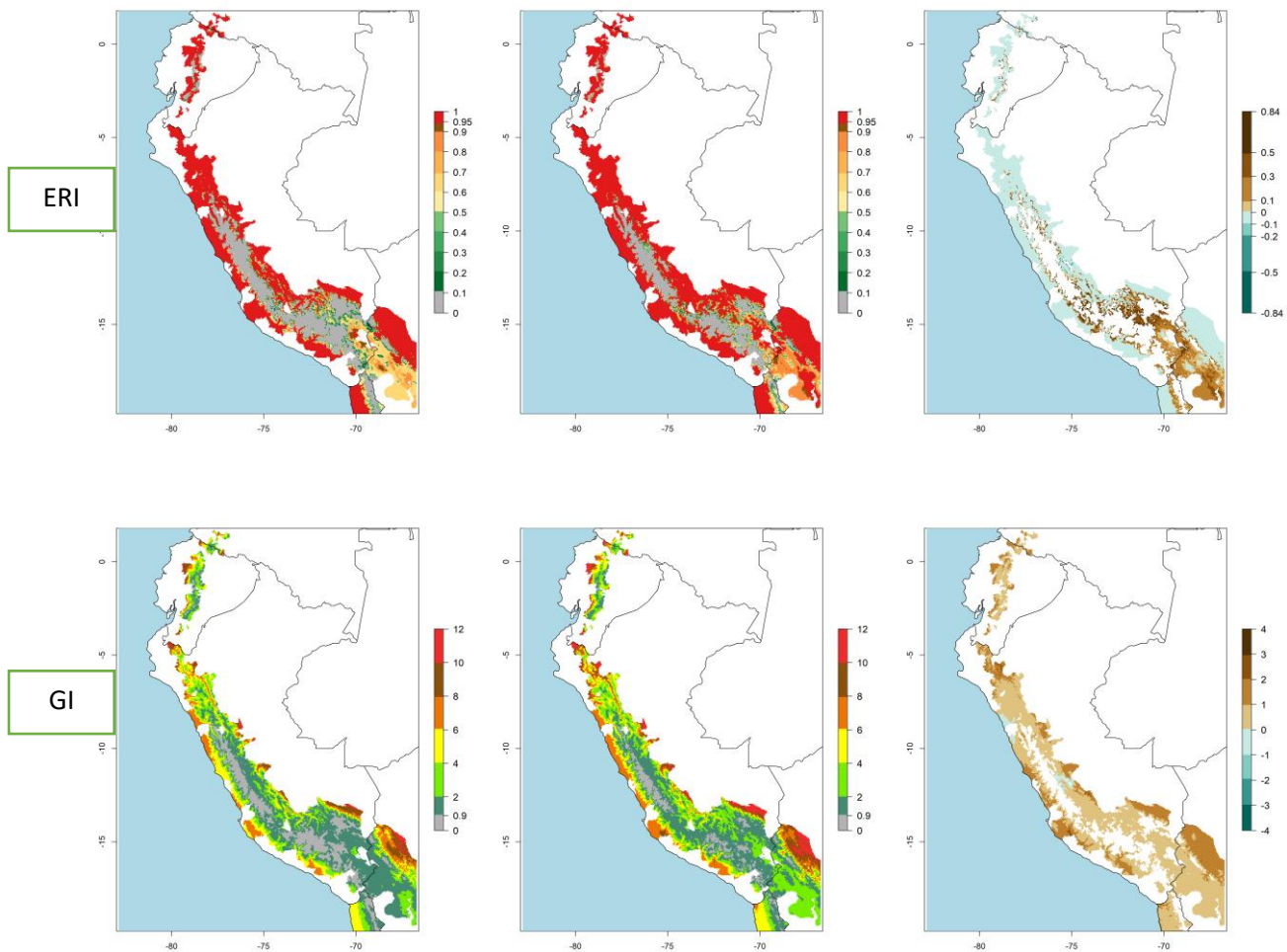


# Resultados Finales del Análisis de Riesgo y su validación para el Complejo Polilla y Gorgojo de los Andes en el Valle del Mantaro y Huancavelica

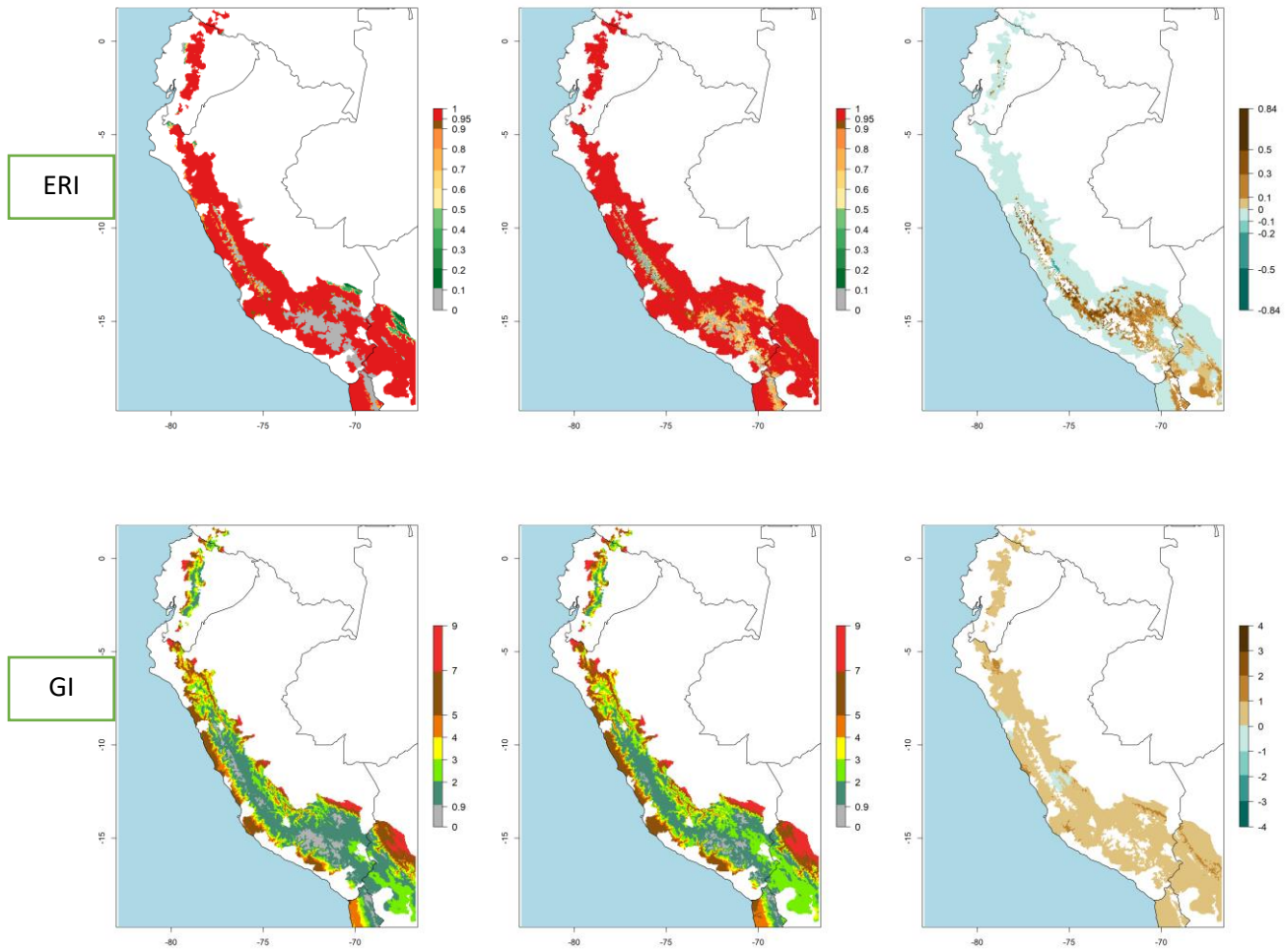
## 1. Mapas de riesgo actual y futuro (Perú)

Cambios en el establecimiento y la distribución potencial de las 3 especies (*Po*, *St* y *Ps*), en Perú utilizando el ERI para los años 2018 y 20250.

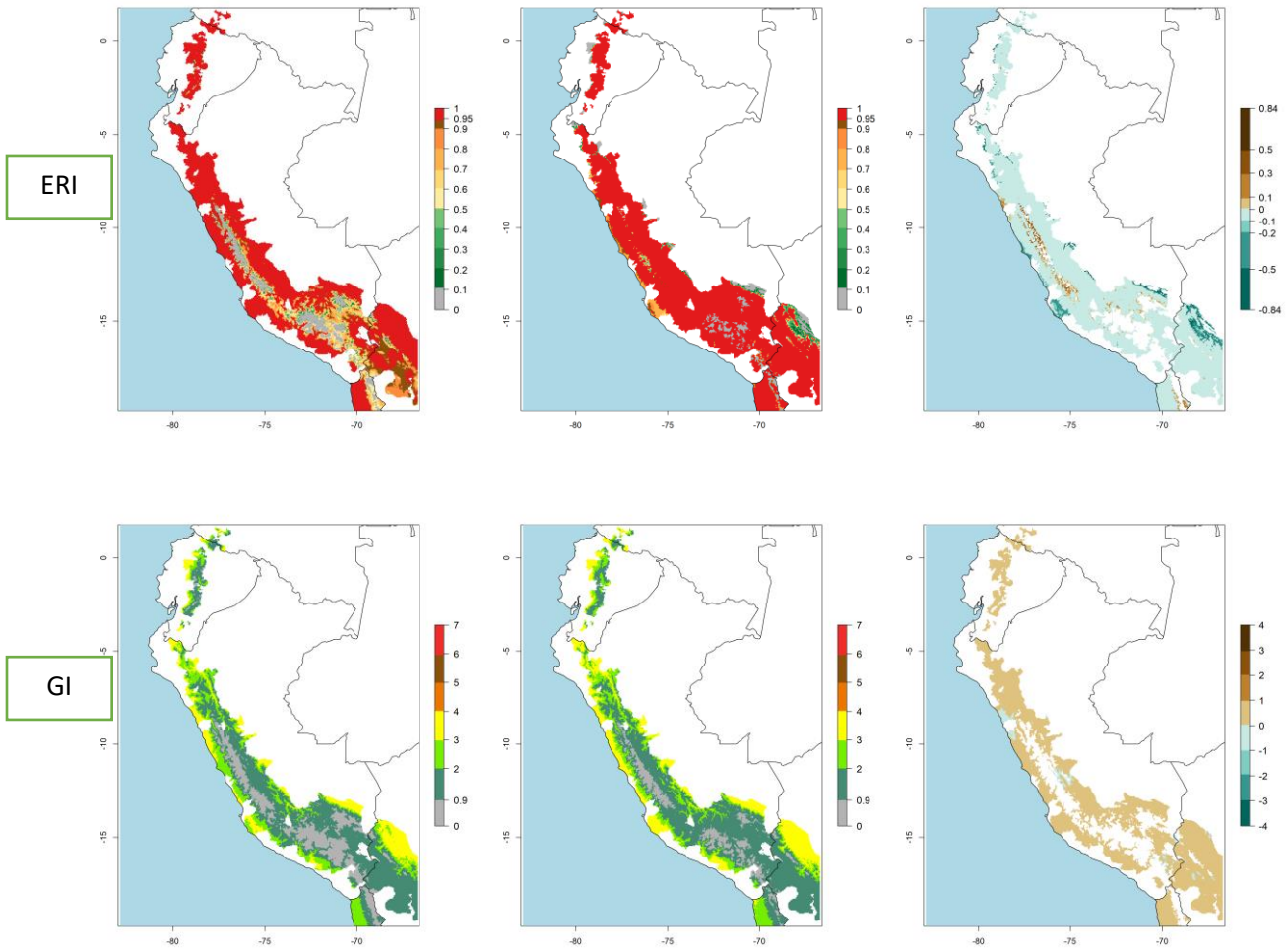
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St:



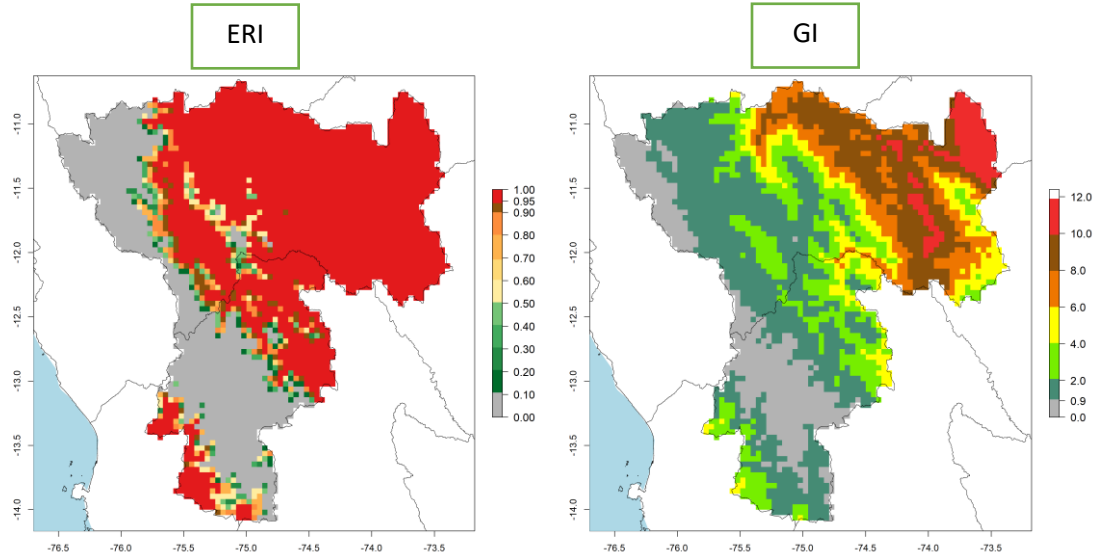
Ps:



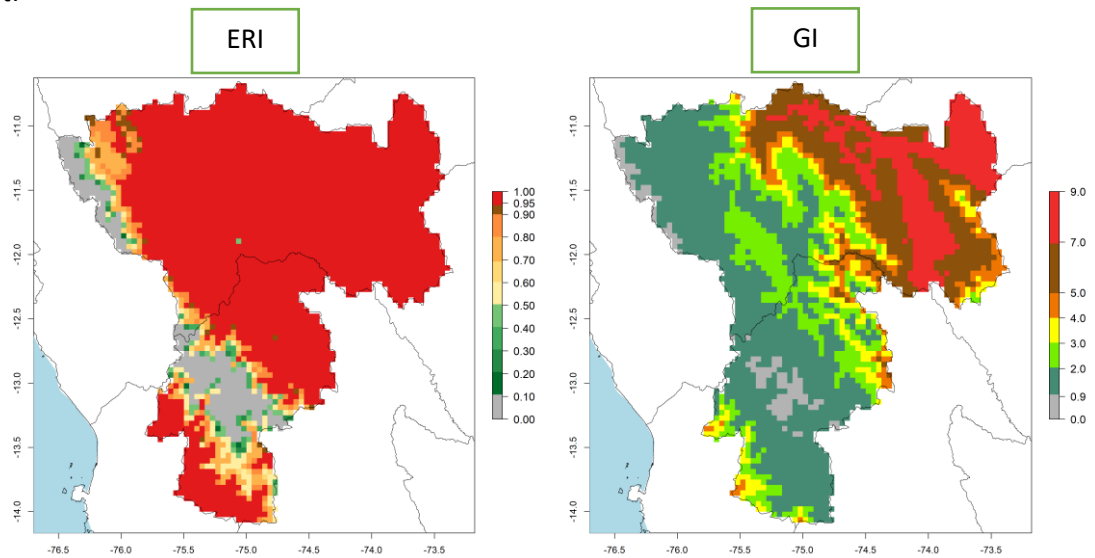
## 2. Mapas de riesgo actual y futuro (Junin y Huancavelica)

Cambios en el establecimiento y la distribución potencial de las 3 especies (*Po*, *St* y *Ps*), en Junin y Huancavelica utilizando el ERI y GI para el año 2018.

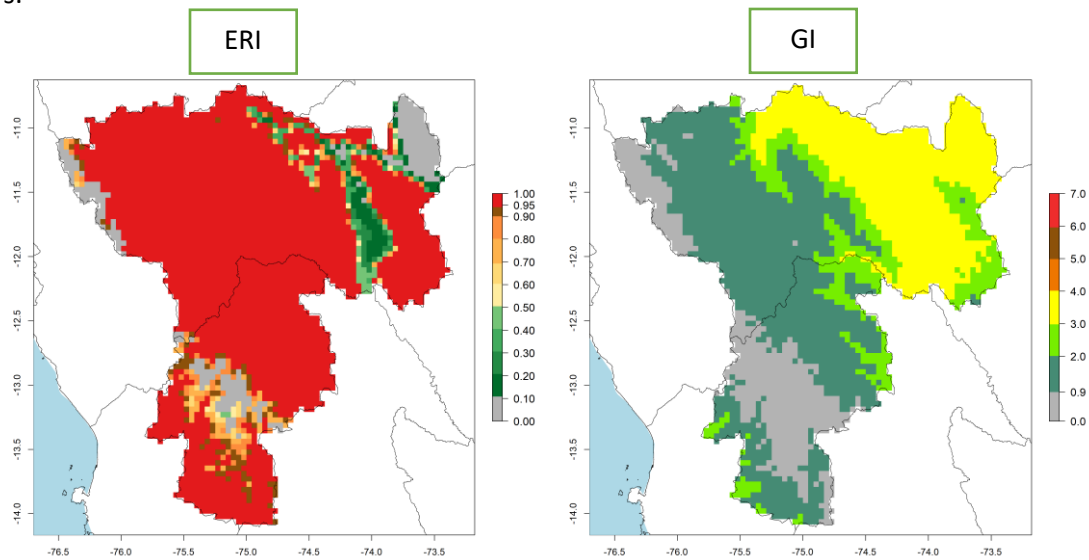
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St:



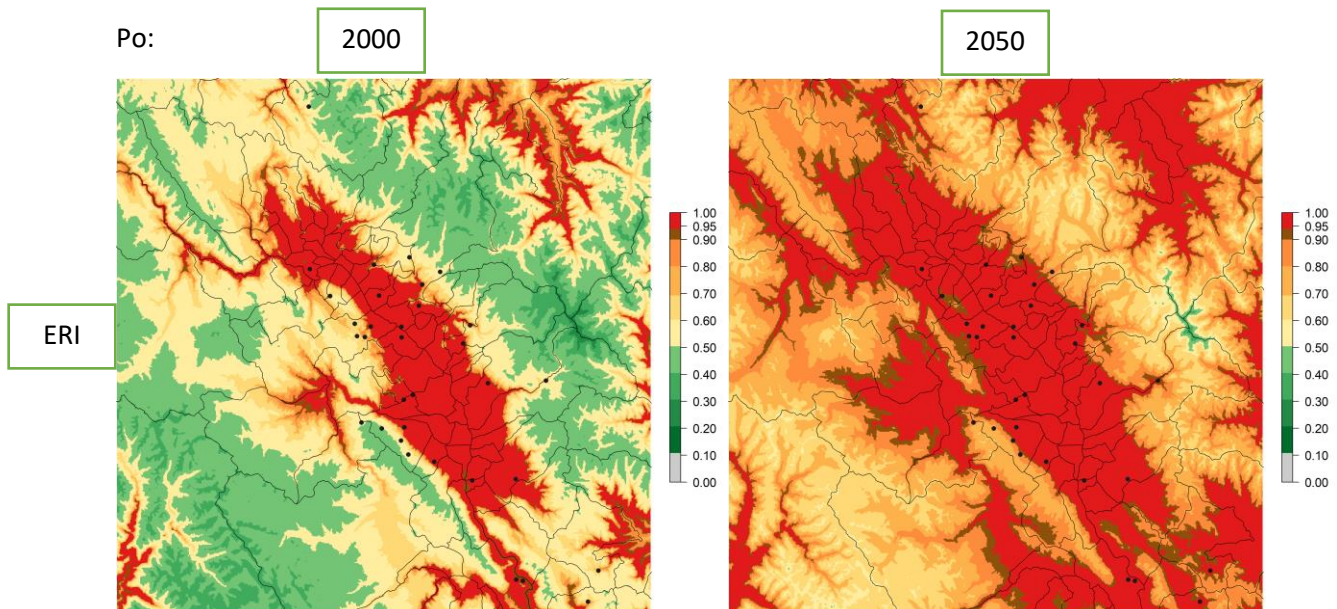
Ps:



### 3. Mapas de riesgo usando Interpolación para el Valle del Mantaro y escenarios futuros

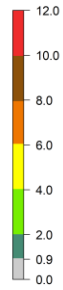
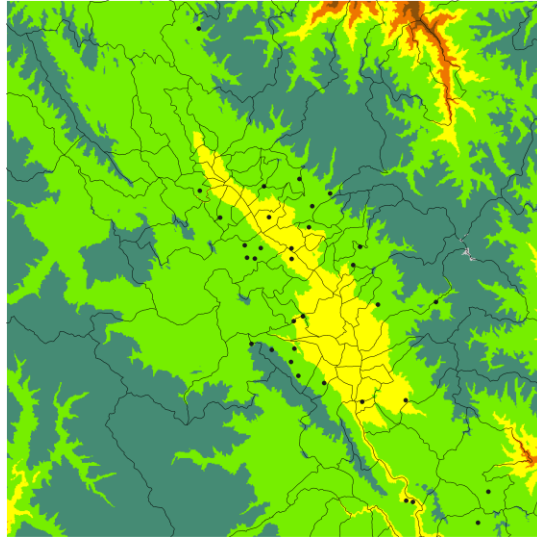
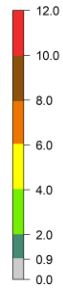
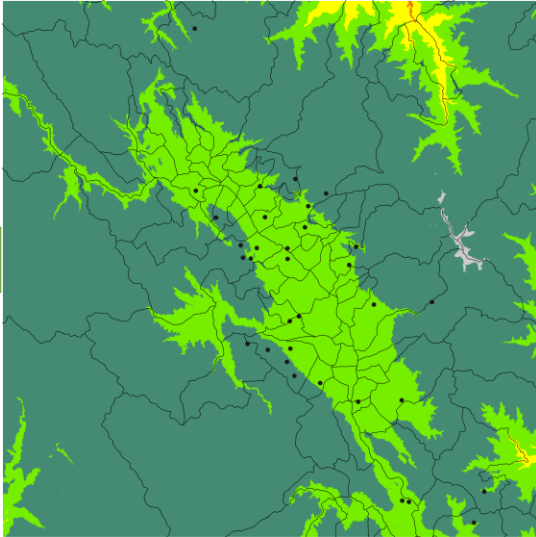
Establecimiento potencial (ERI) y número de generaciones (abundancia, índice de generación) de *Phthorimaea operculella*, *Symmetrichema tangolias* y *Premnotrypes suturicallus*, en el valle del Mantaro entre 3000 y 4200 msnm bajo condiciones climáticas actuales (2011-2020) y futuras, suponiendo incrementos de temperatura de 2°C

Po:





GI

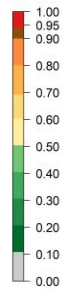
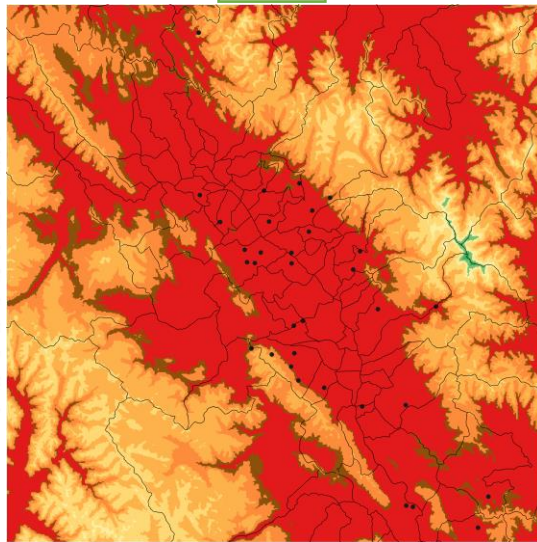
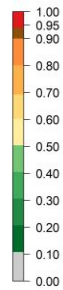
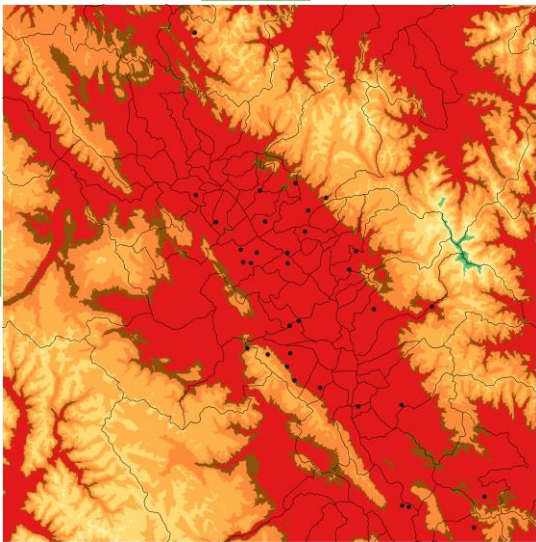


St:

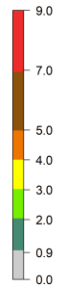
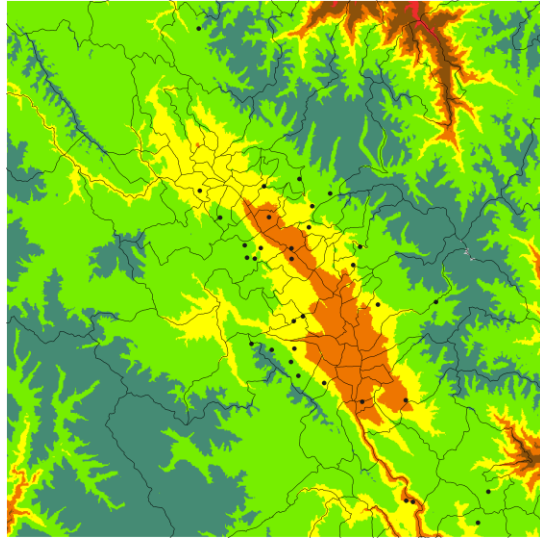
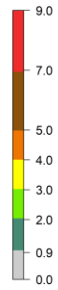
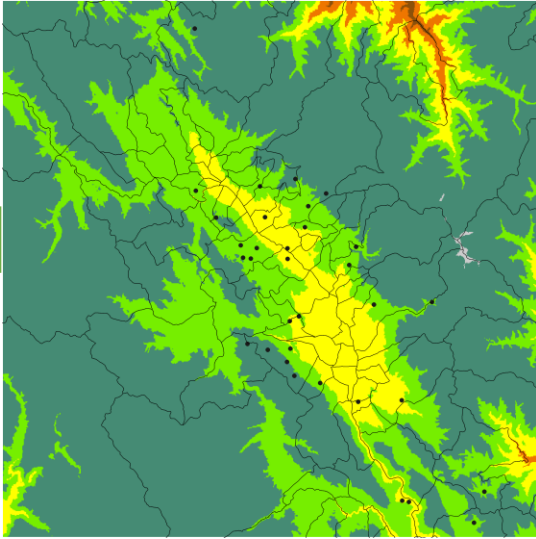
2000

2050

ERI



GI

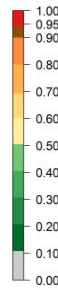
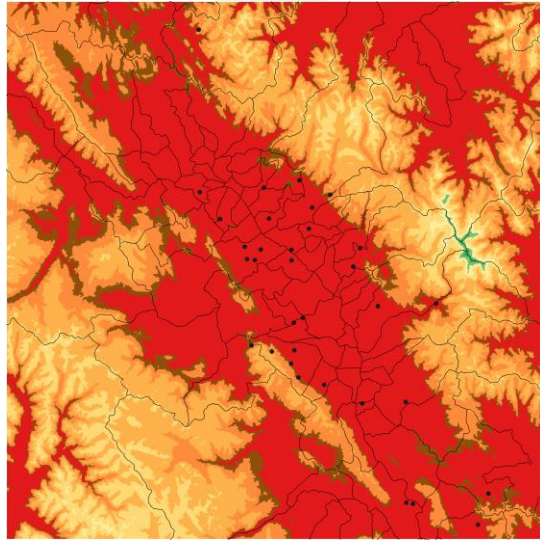
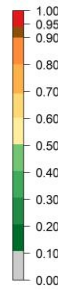
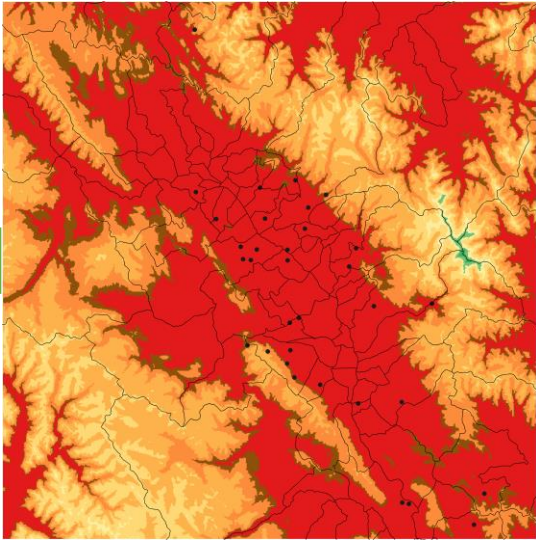


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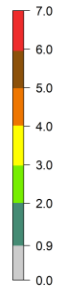
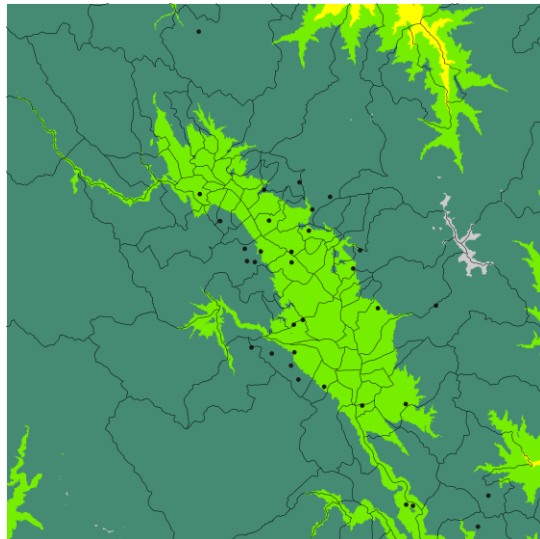
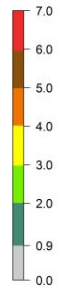
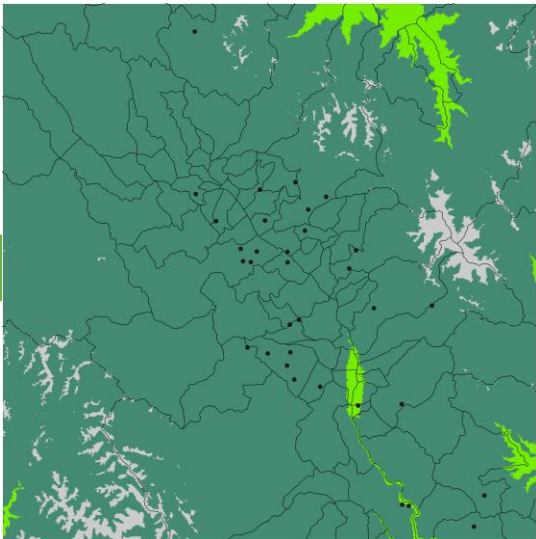
2000

2050

ERI



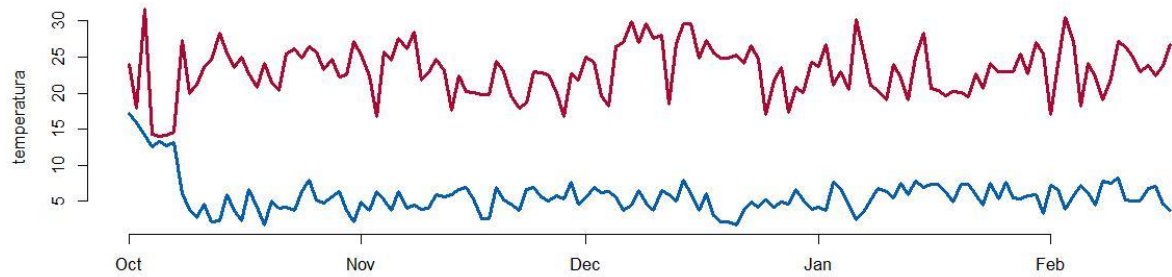
GI



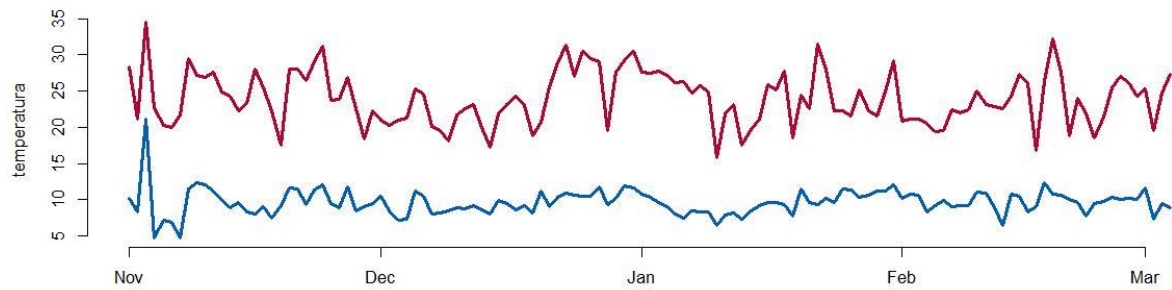


#### 4. Temperaturas fluctuantes (de todas las localidades):

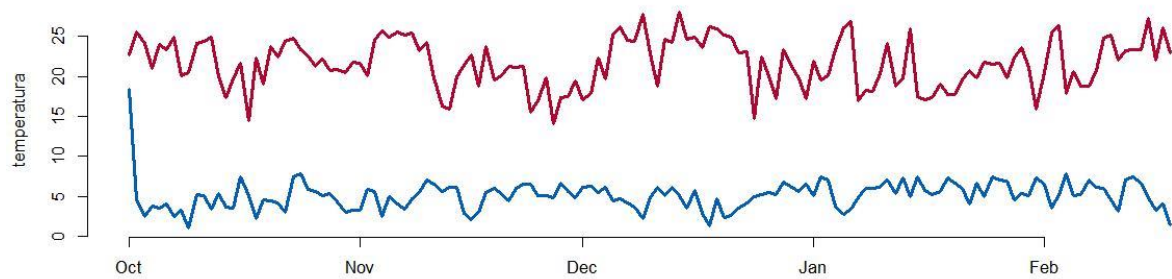
Ancal1:



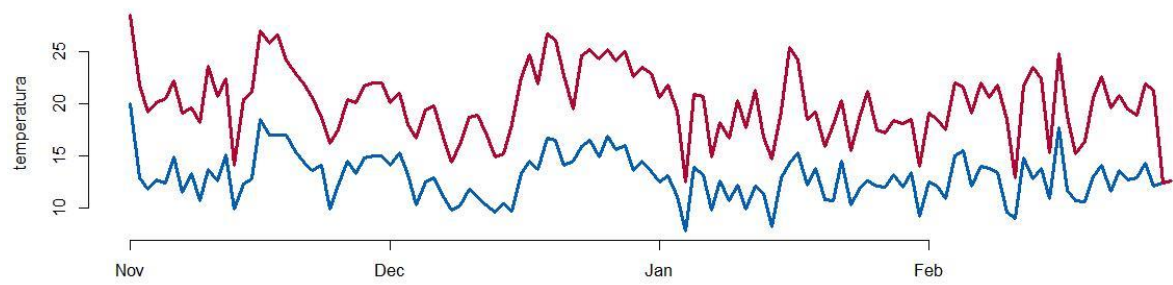
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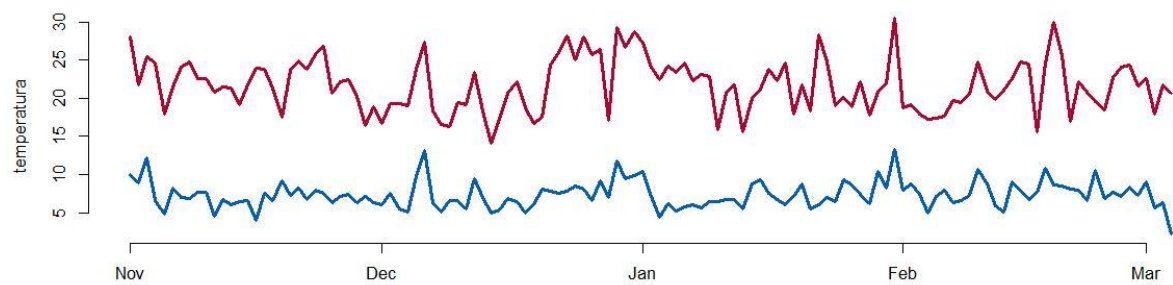
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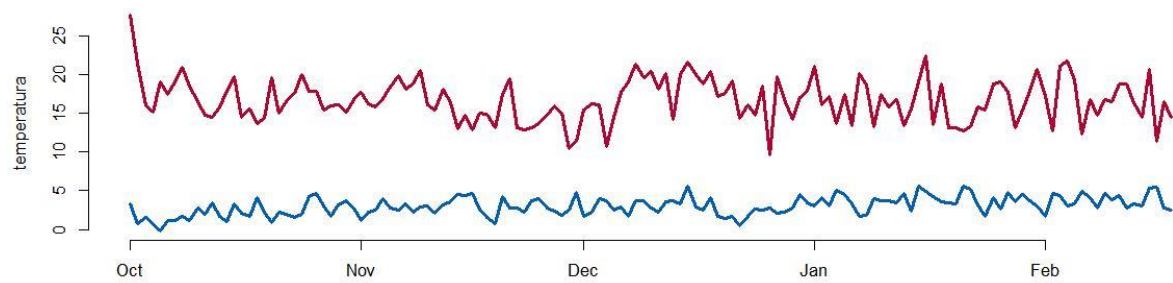
Challqui:



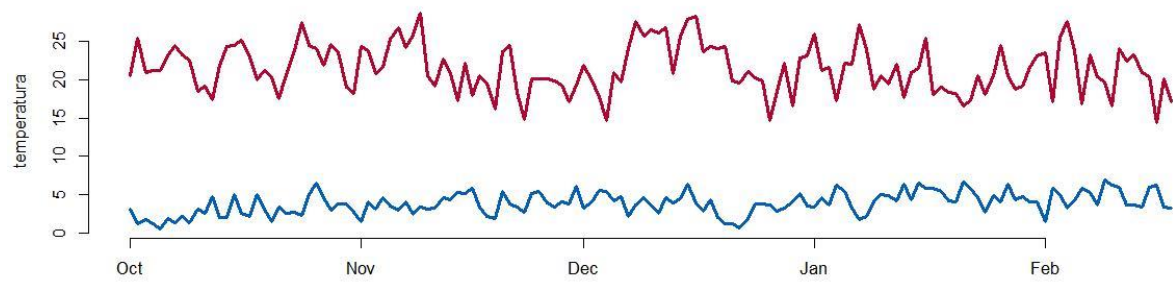
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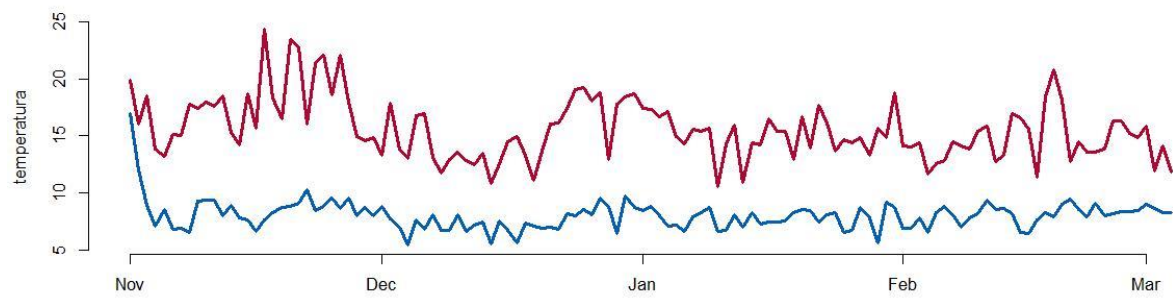
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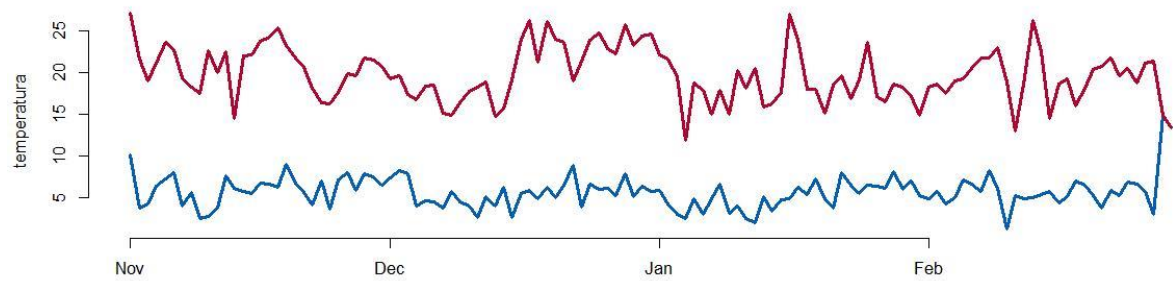
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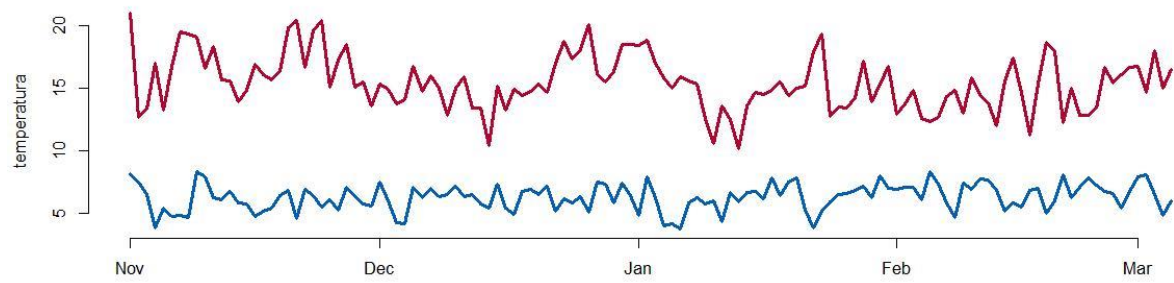
Dosdemayo2:



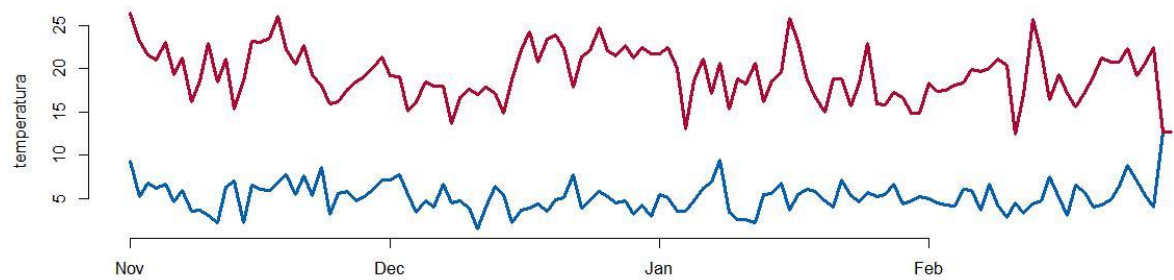
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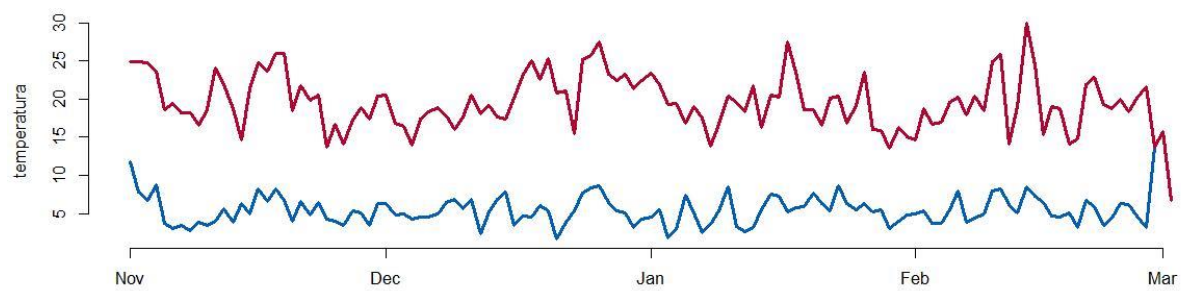
Pachachaca:



Quebradainperial:

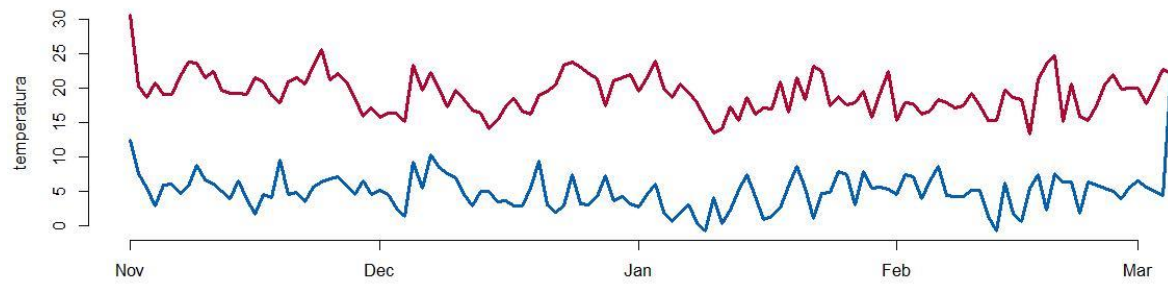


Ricran1:

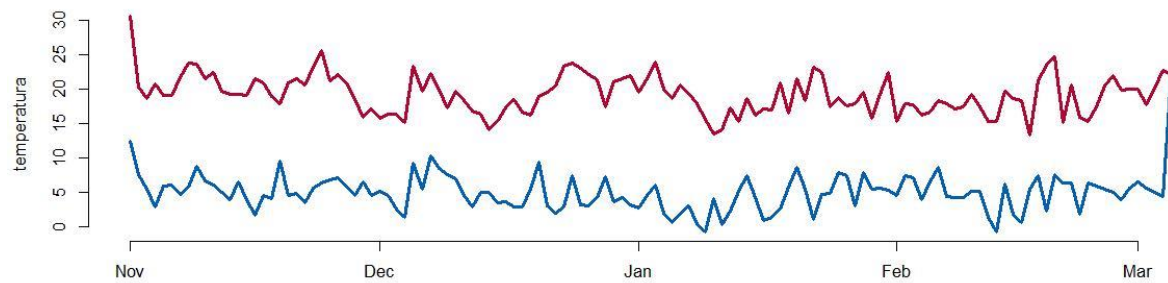


Sapallanga1:





Sapallanga2:

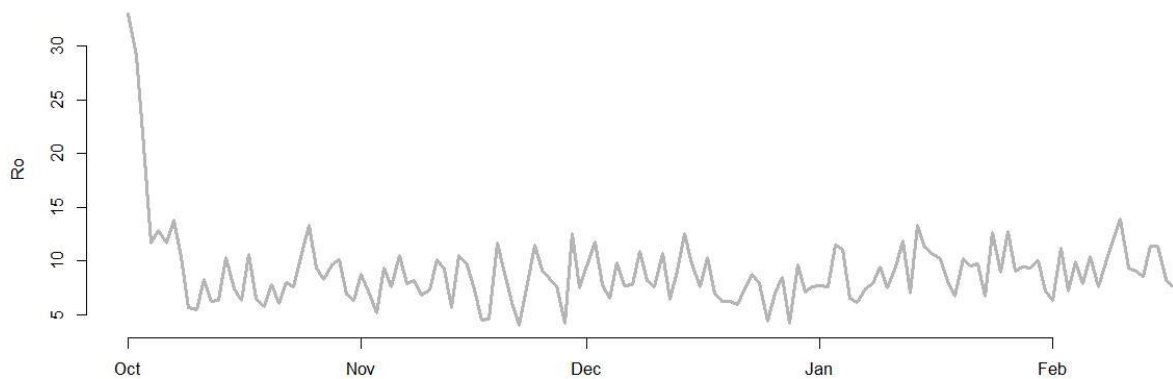


## 5. Contraste entre parámetros de vida y captura (todas las localidades)

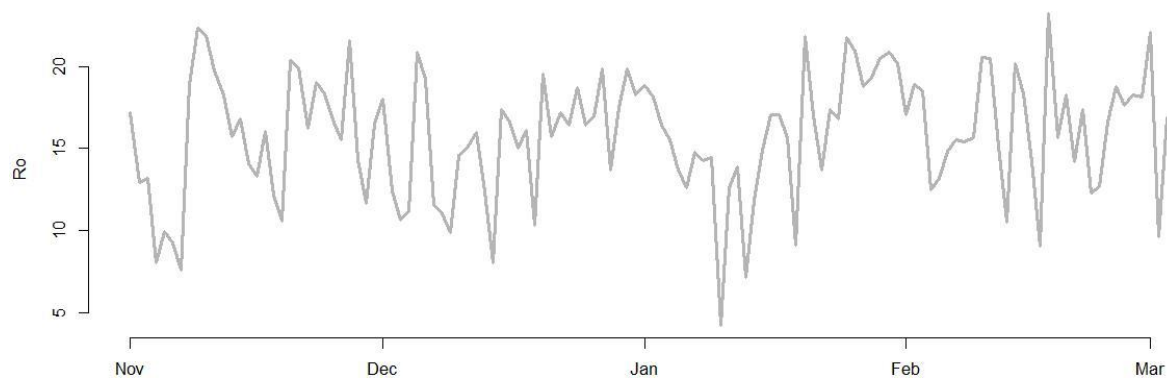
Para la simulación con los datos de temperatura obtenida de los sensores, se observa que hay cierta relación de crecimiento o decrecimiento de individuos con el riesgo de infestación variante en el tiempo

Para *Phthorimaea operculella*

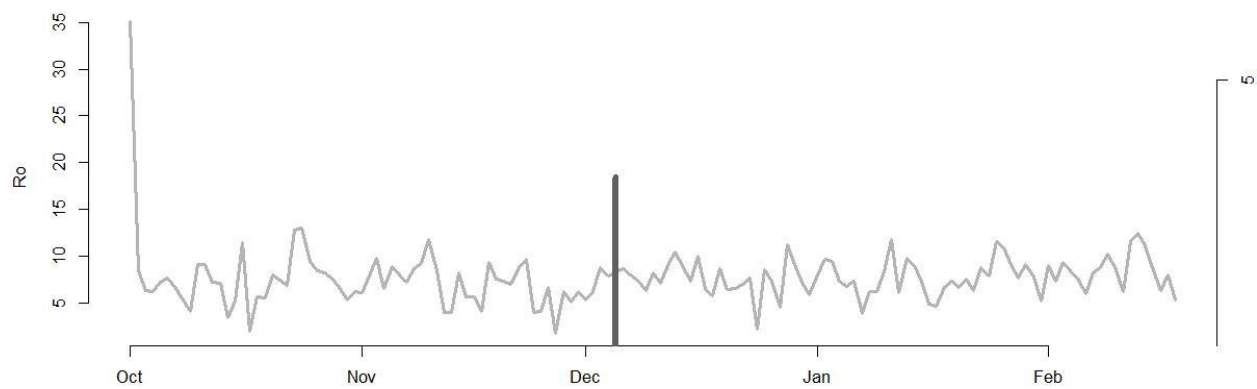
Ancal1:



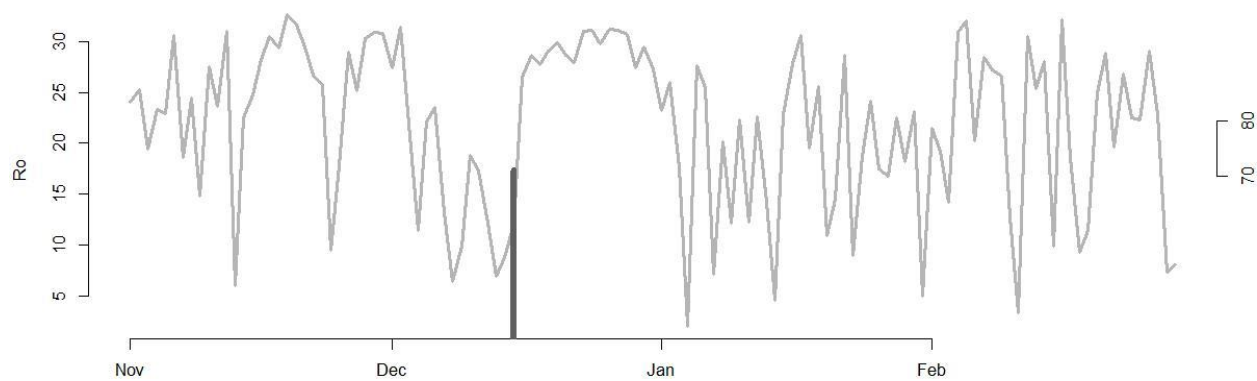
Ancal2:



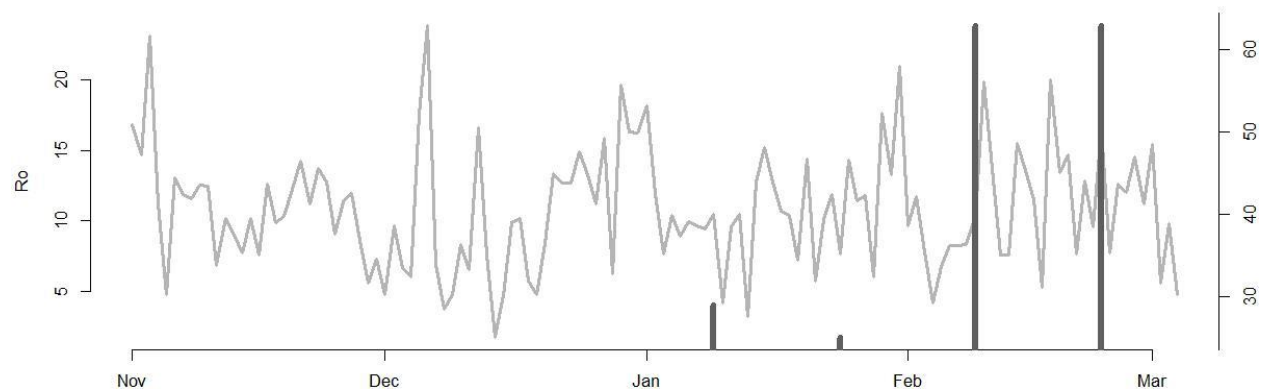
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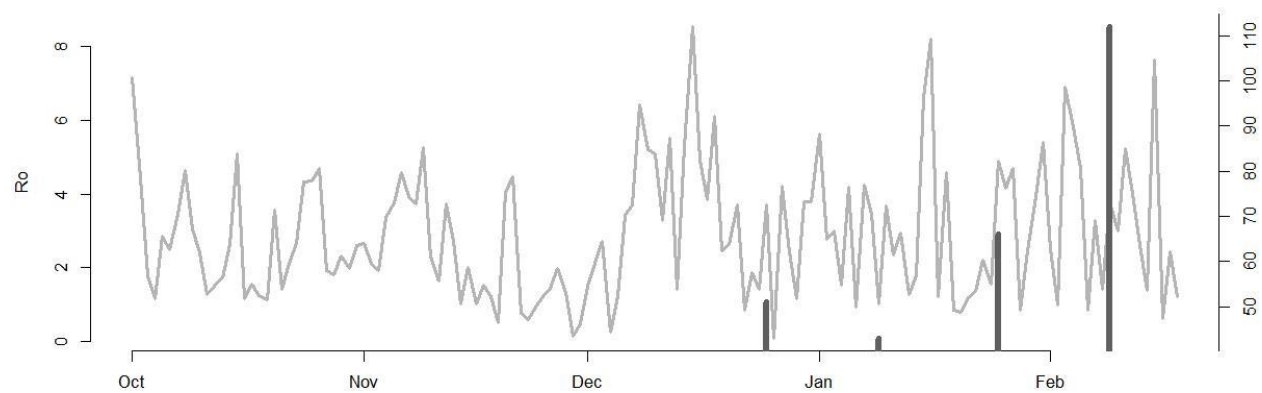
Challqui:



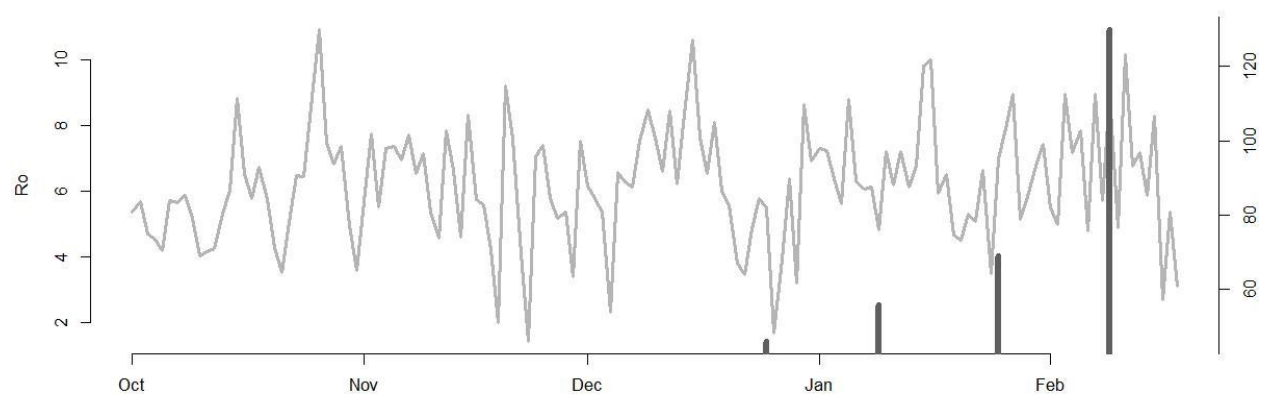
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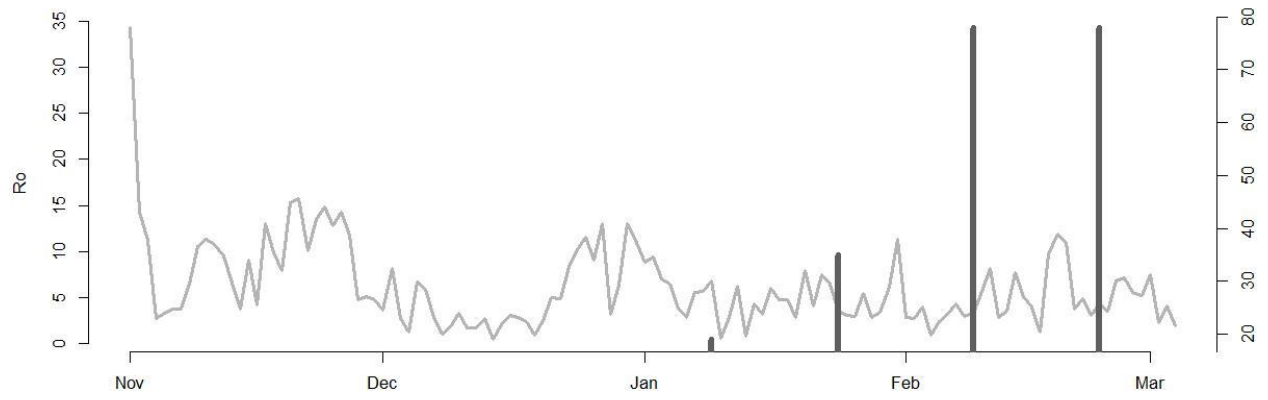
Chicche2:



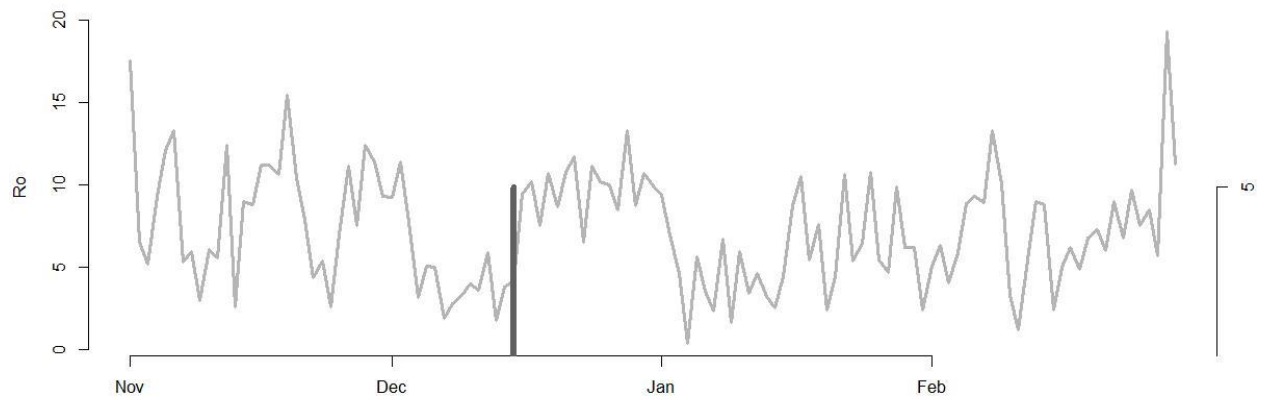
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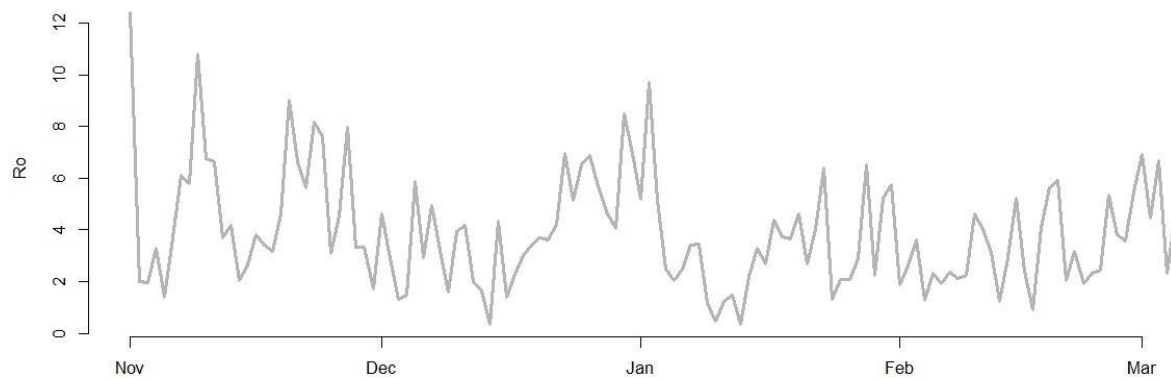
Dosdemayo2:



Pacchomolino:

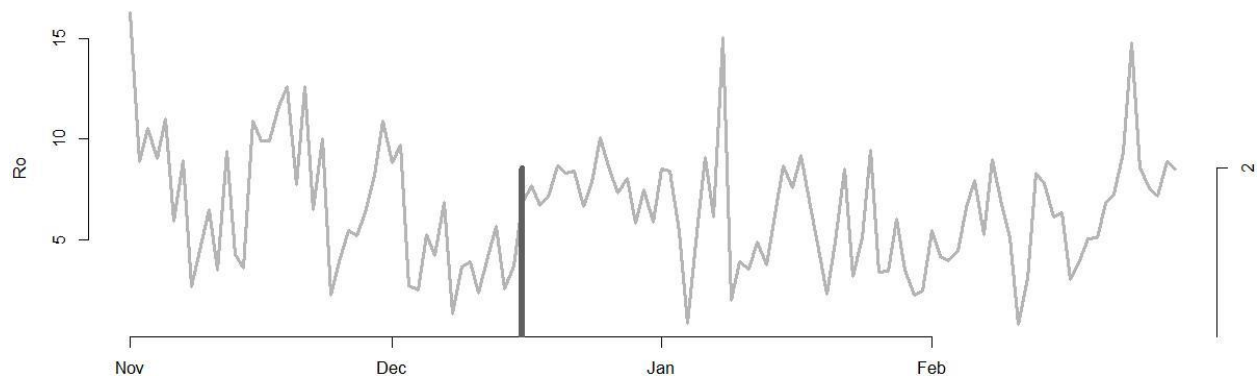


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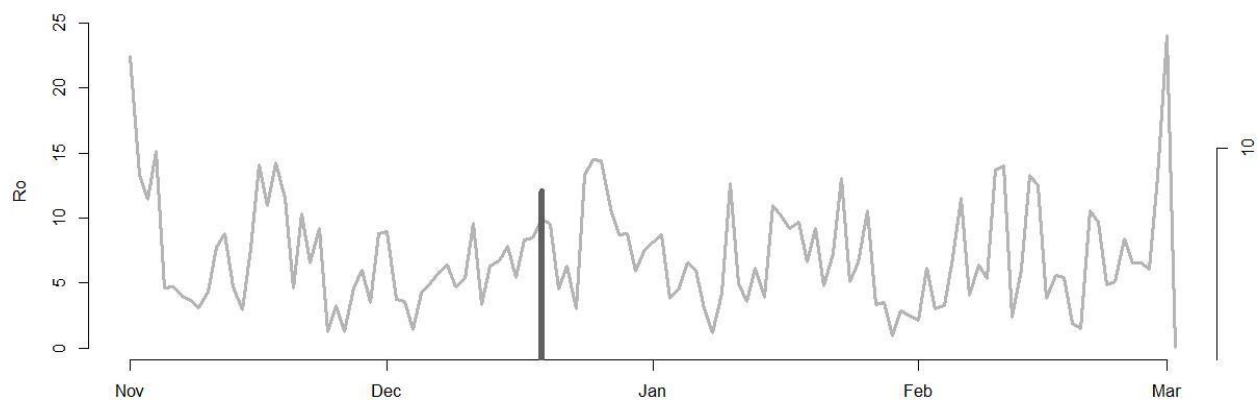


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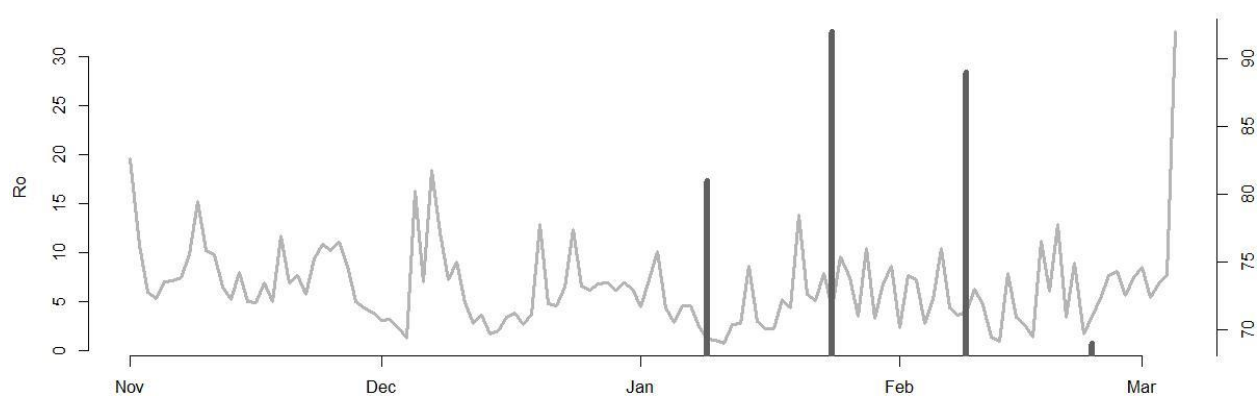




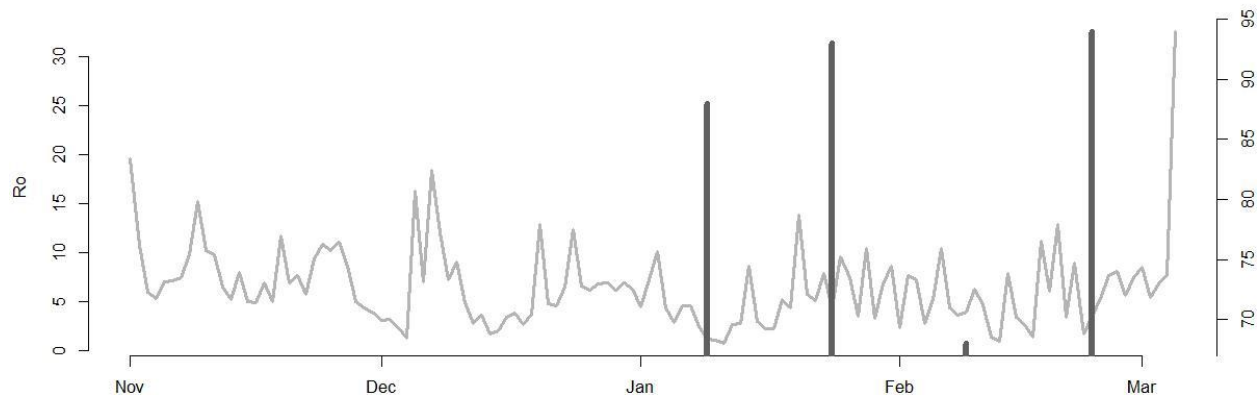
Ricran1:



Sapallanga1:

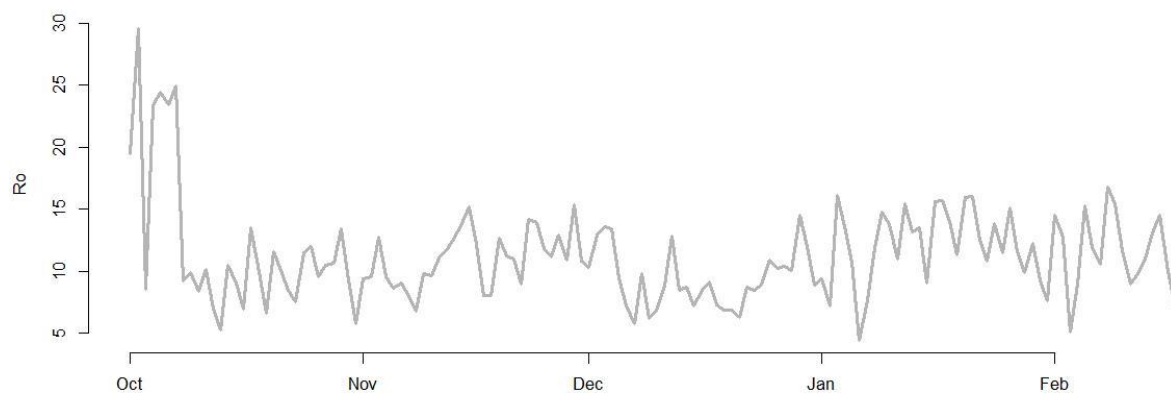


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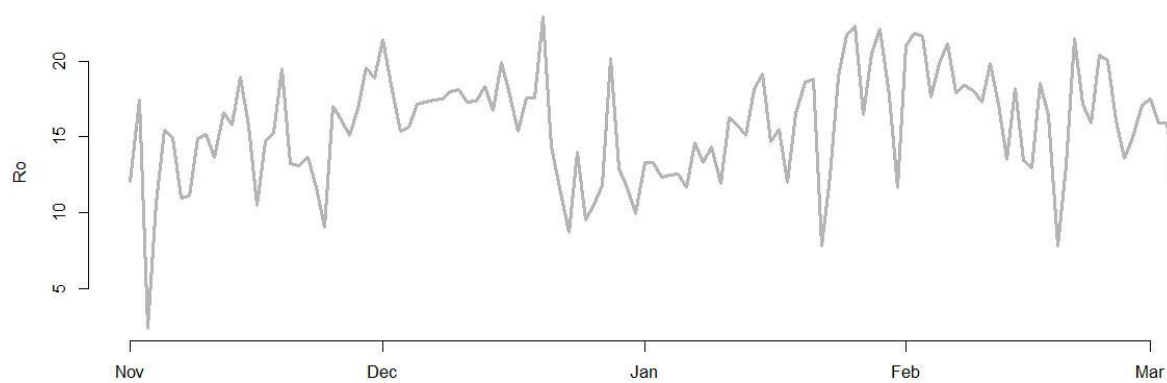


Para *Symmetrichema tangolias*

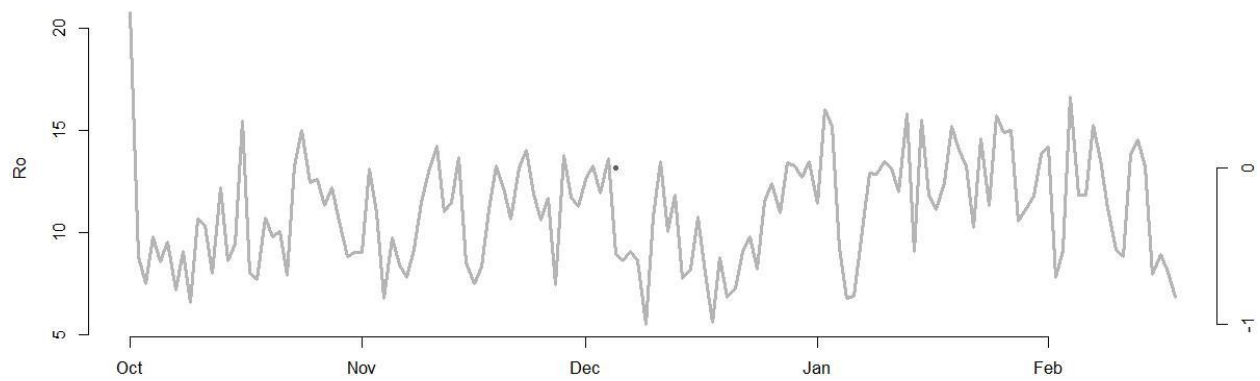
Ancal1:



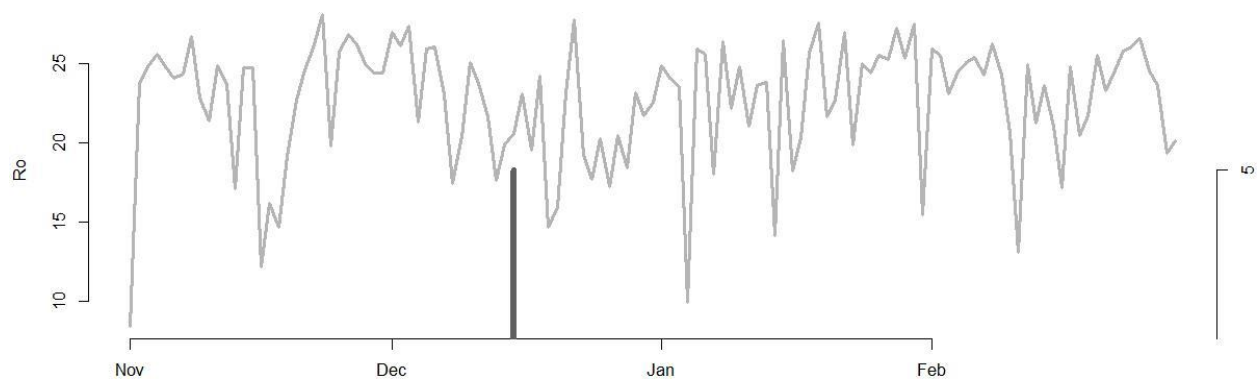
Ancal2:



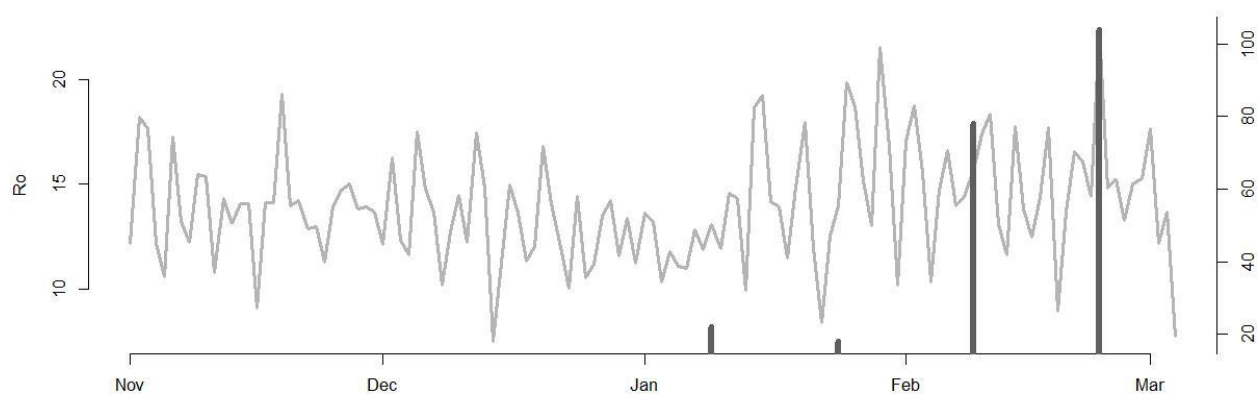
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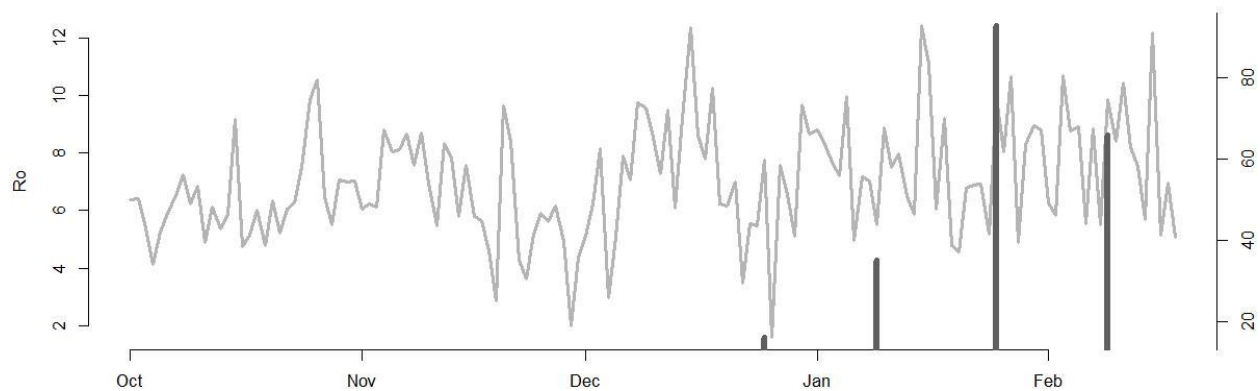
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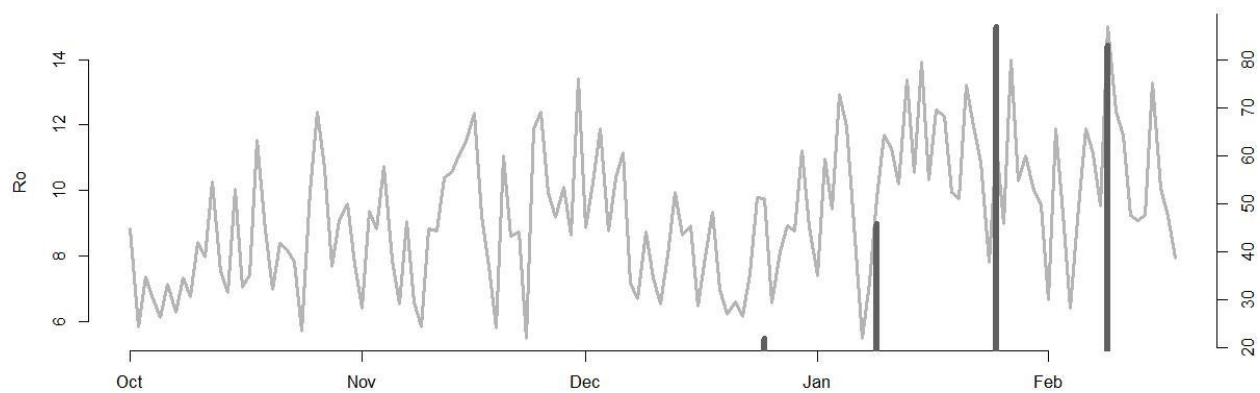
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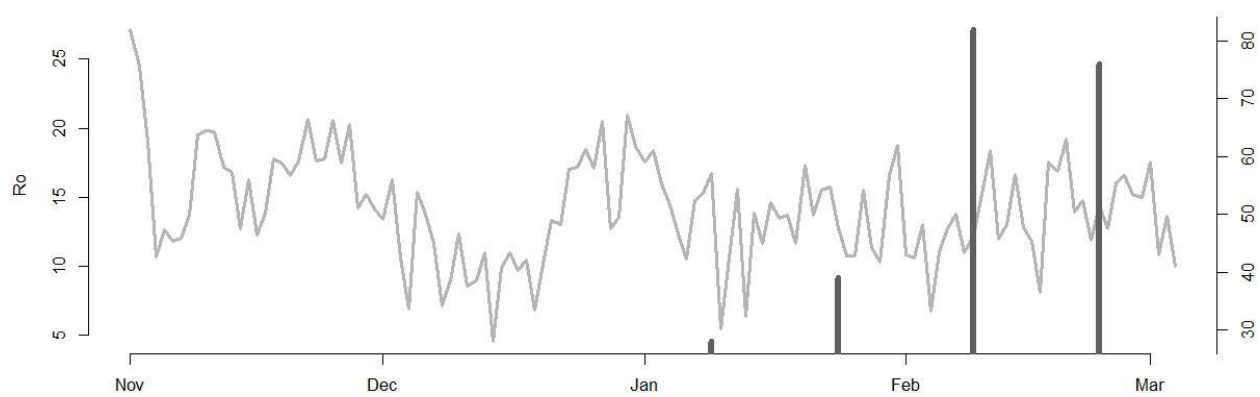
Chicche2:



Dosdemayo1:

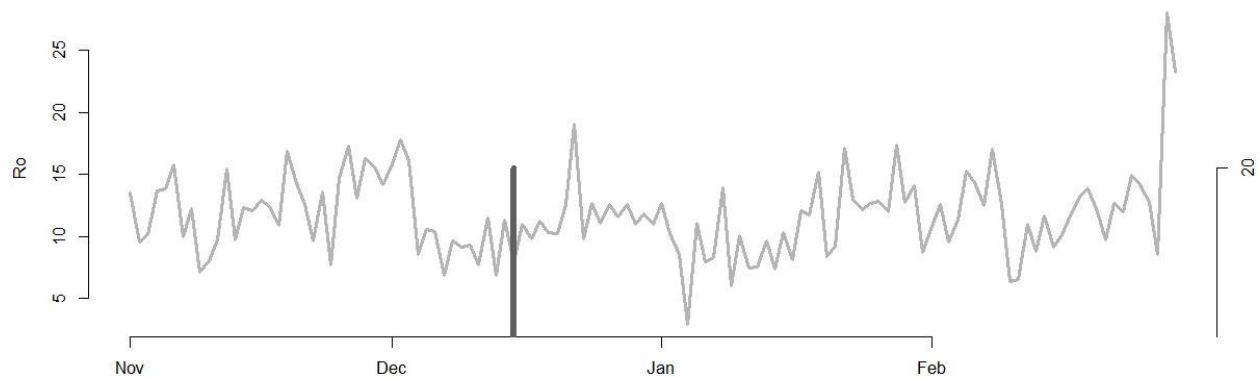


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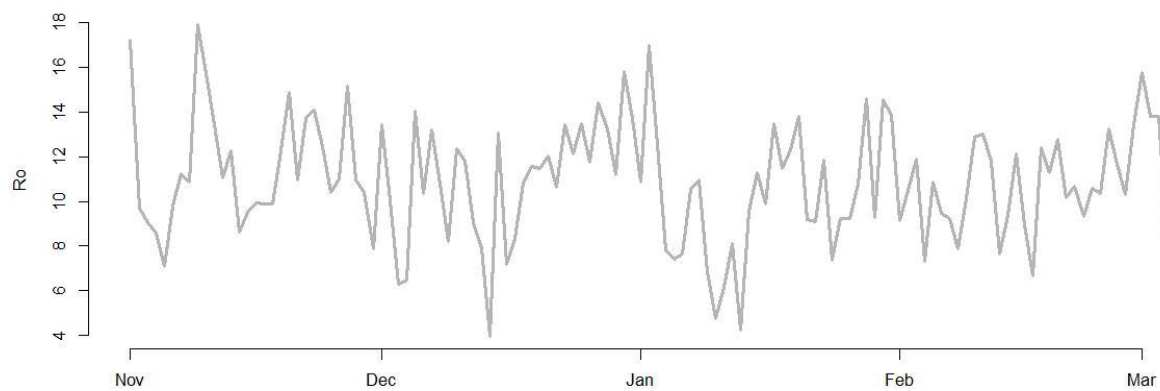


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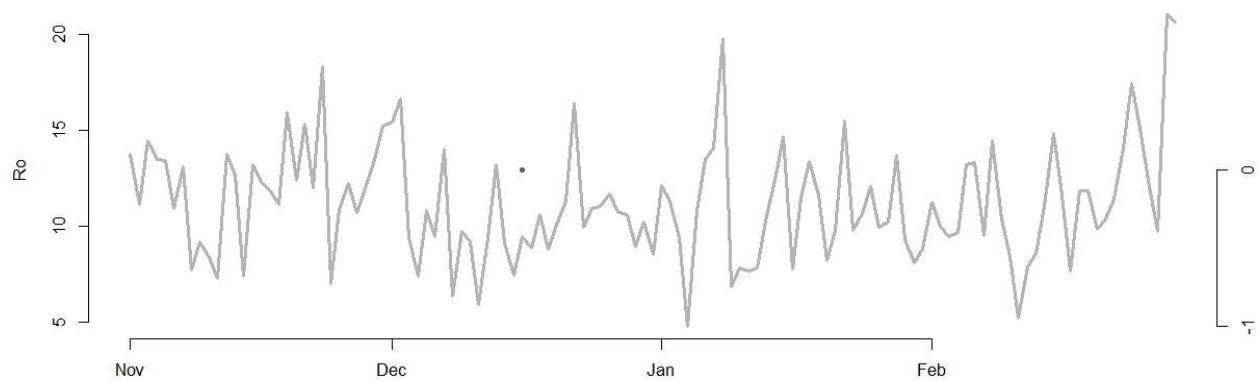




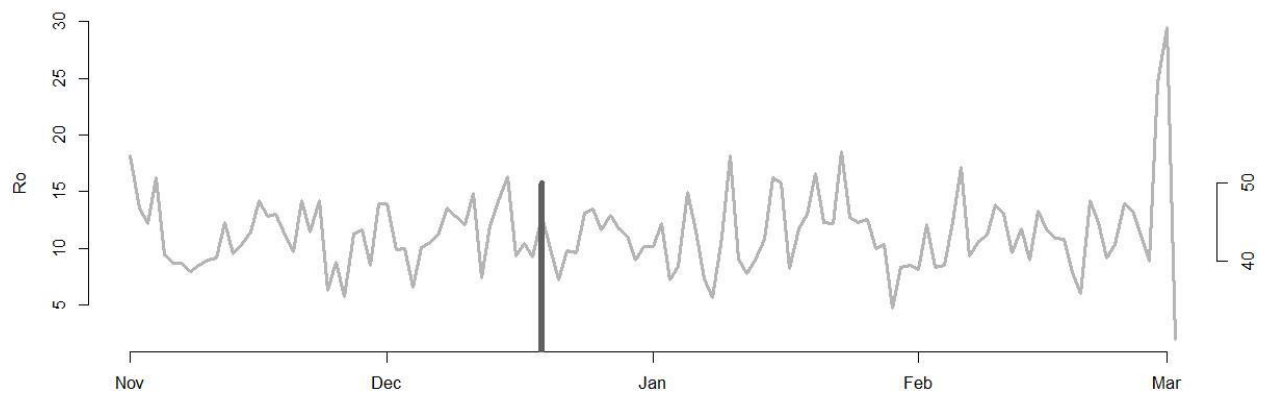
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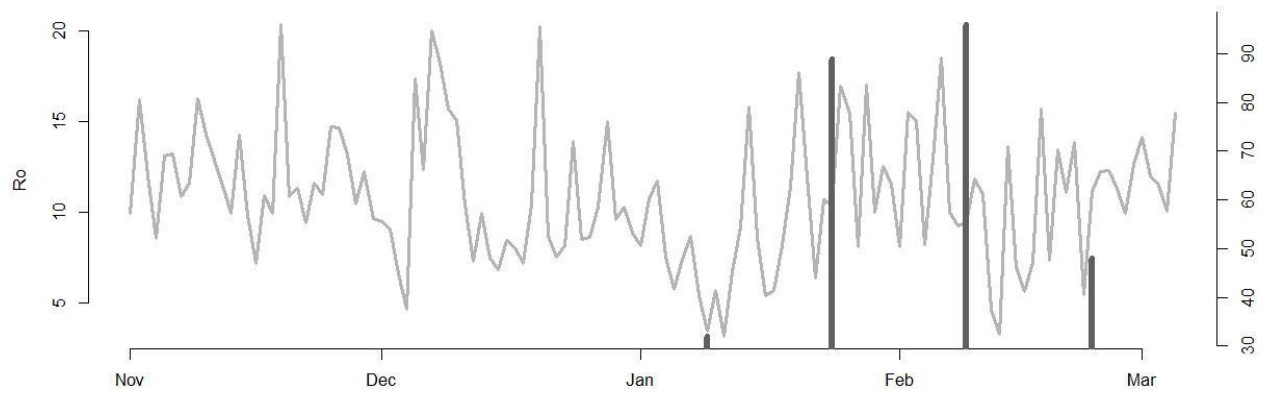
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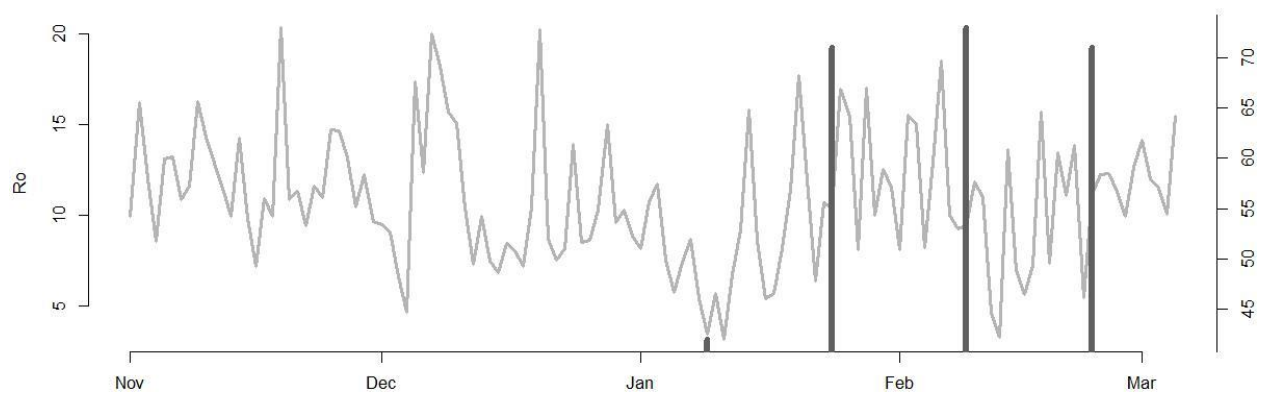
Ricran1:



Sapallanga1:

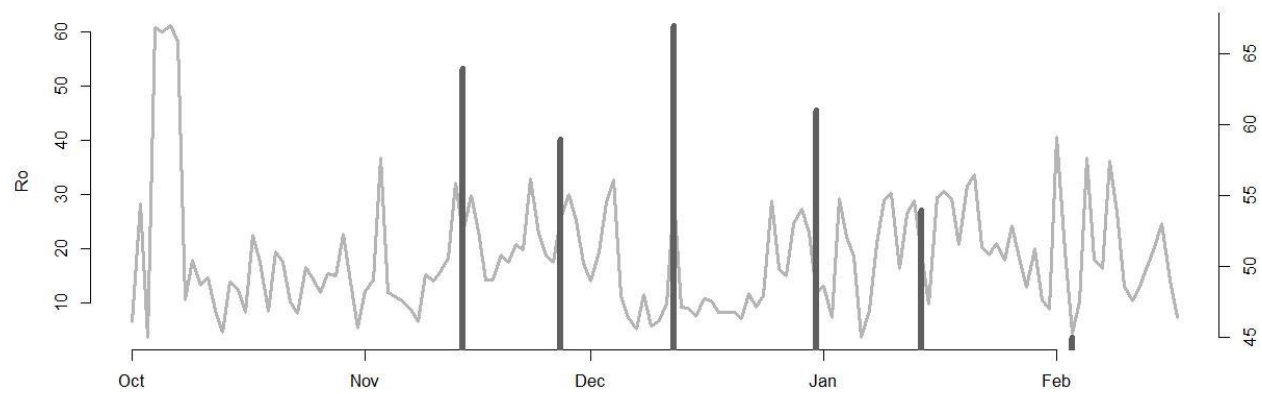


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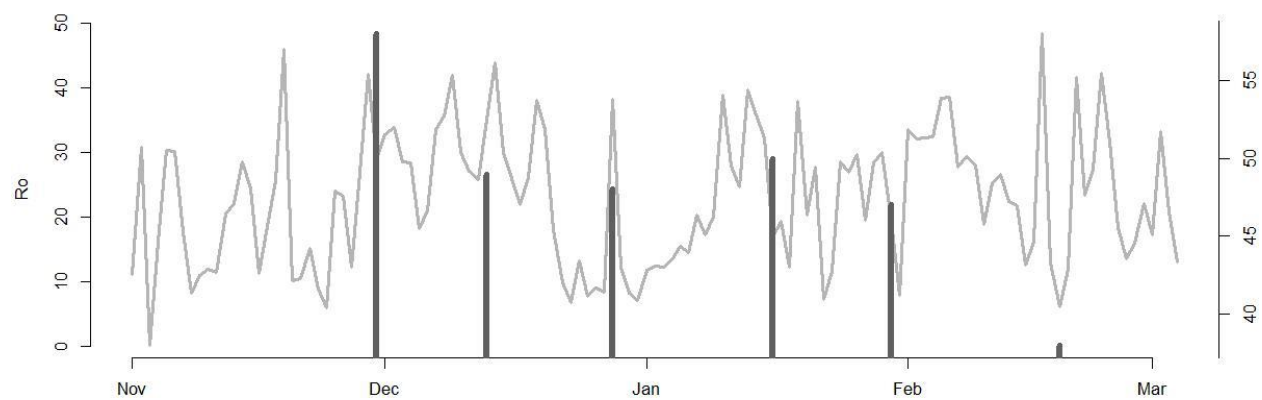


Para *Premnotrypes suturicallus*

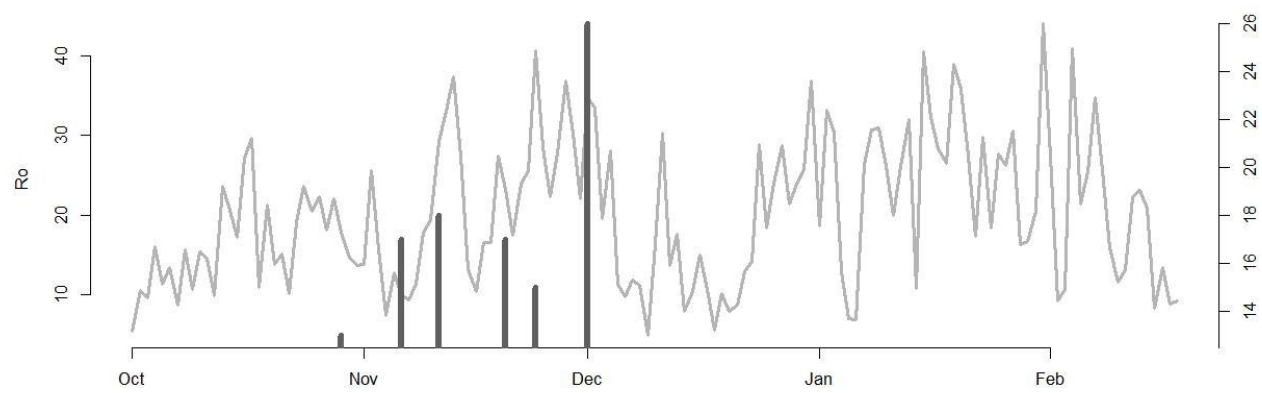
Ancal1:



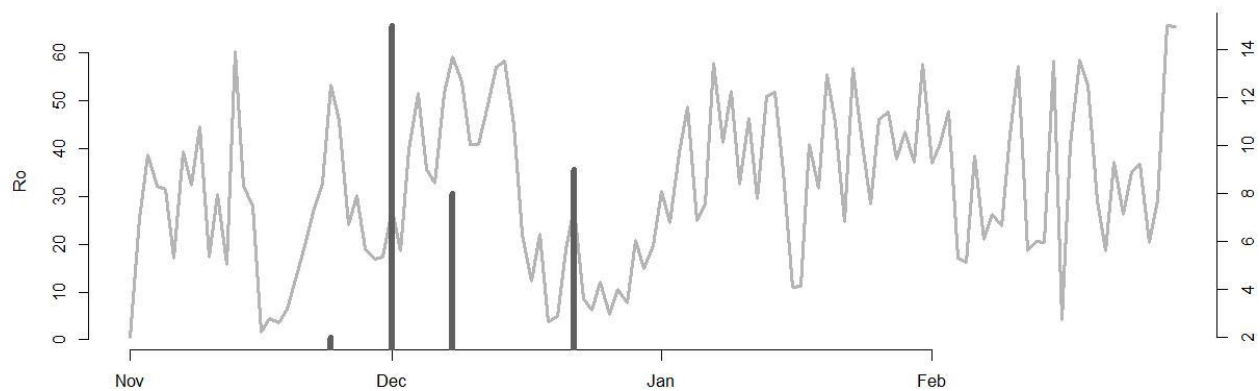
Ancal2:



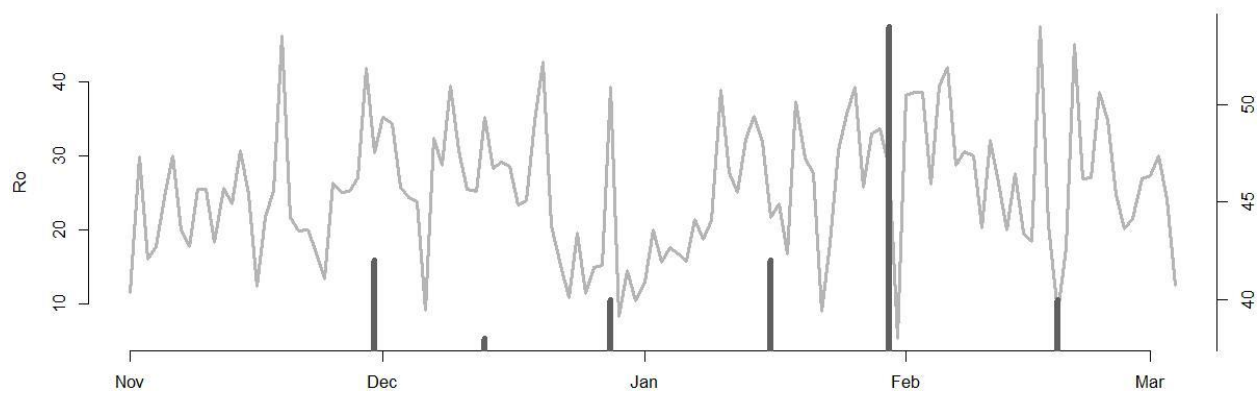
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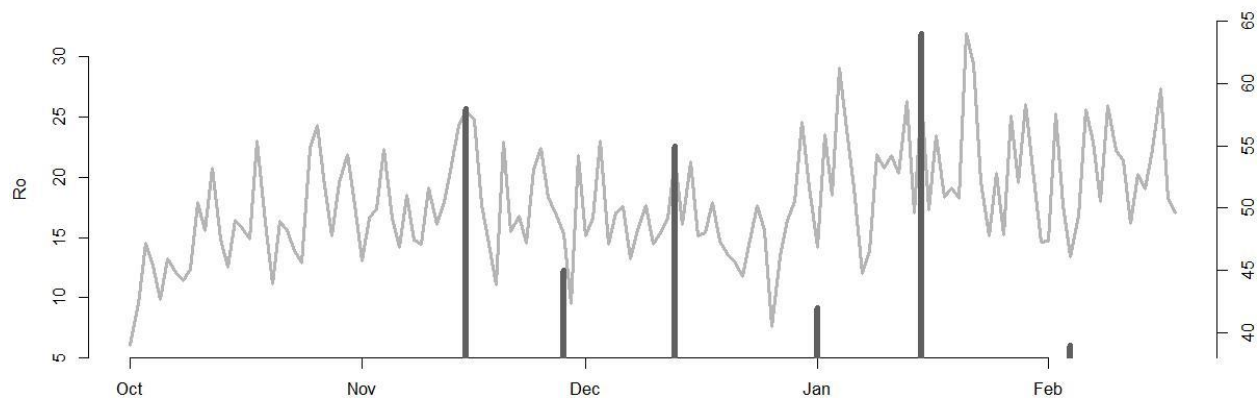
Challqui:



Chicche1:

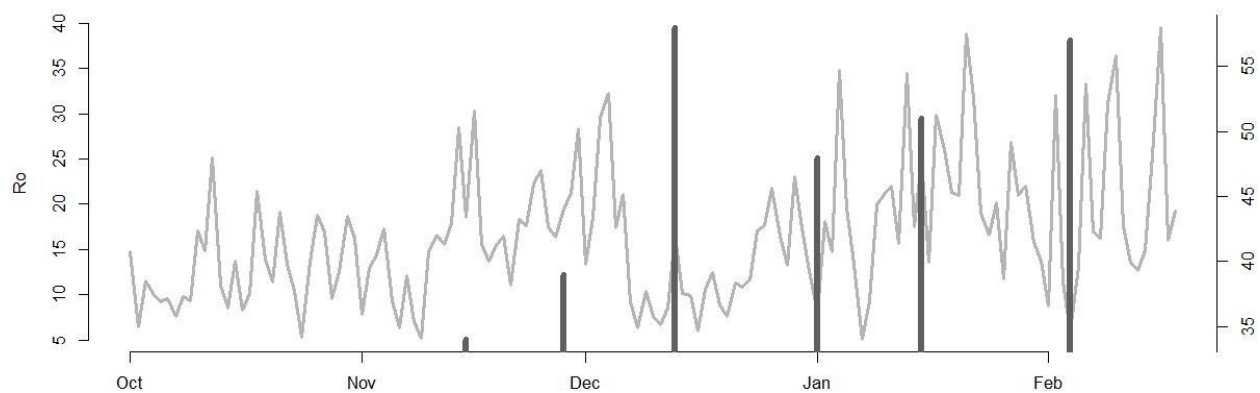


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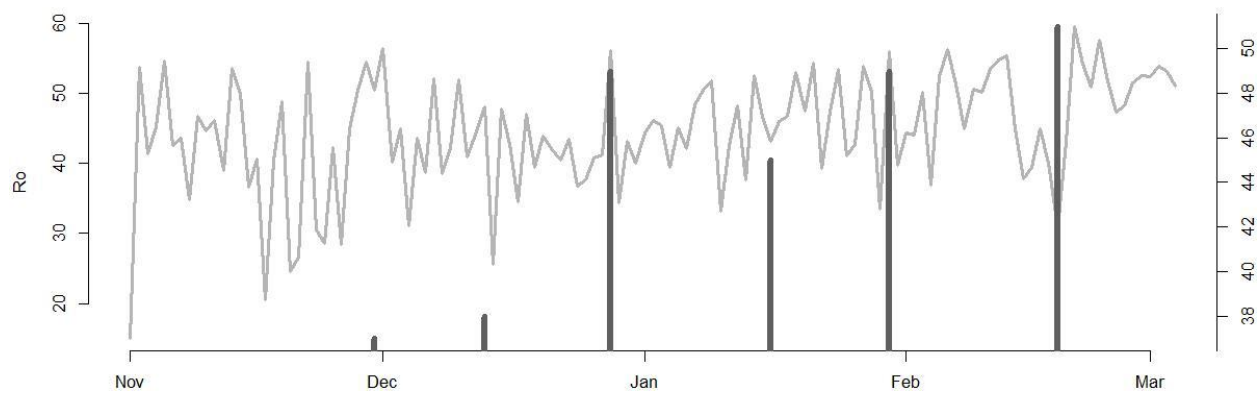


Dosdemayo1:

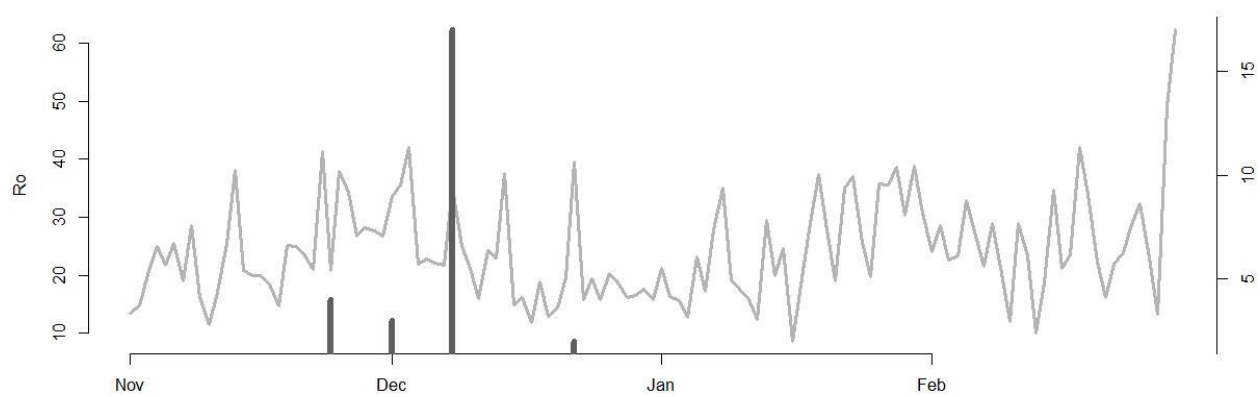




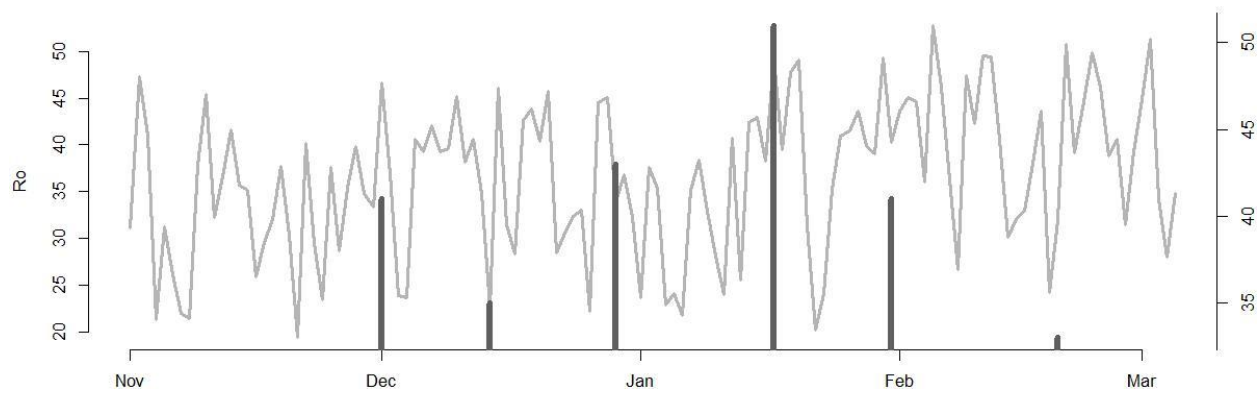
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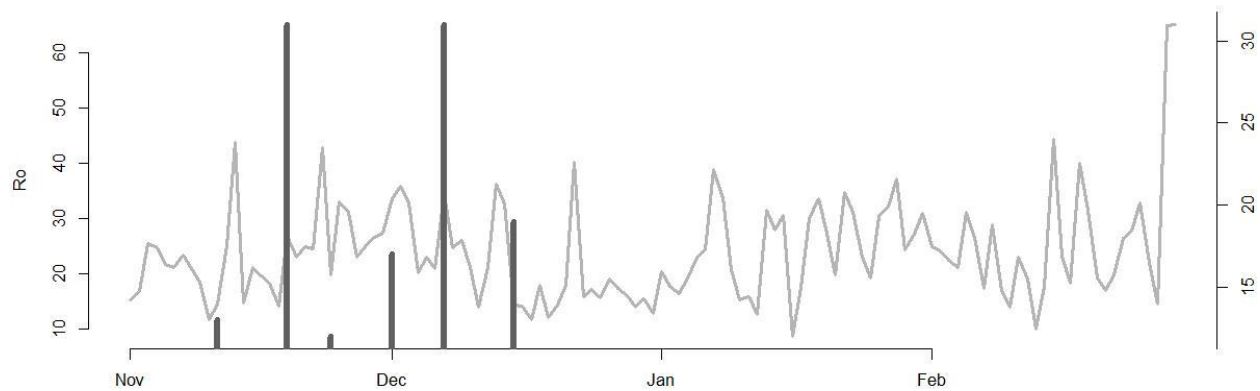
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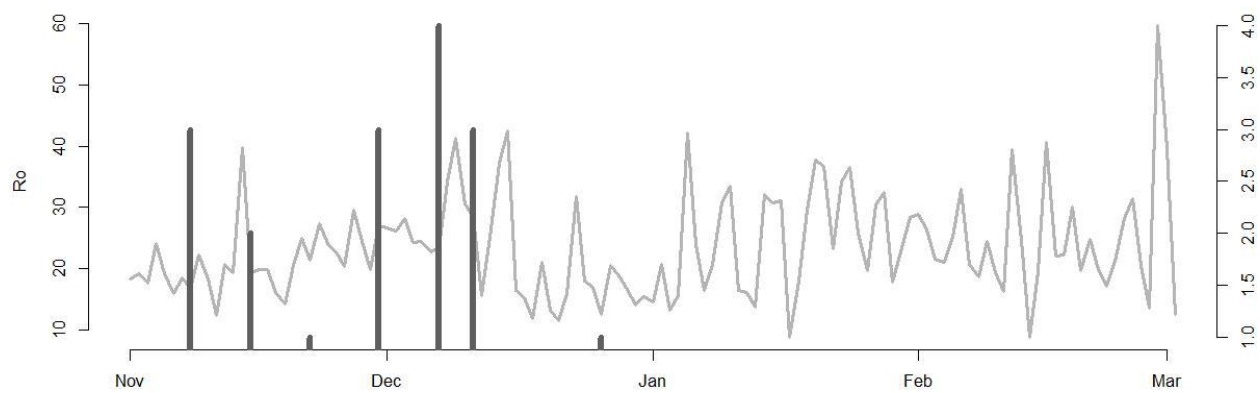
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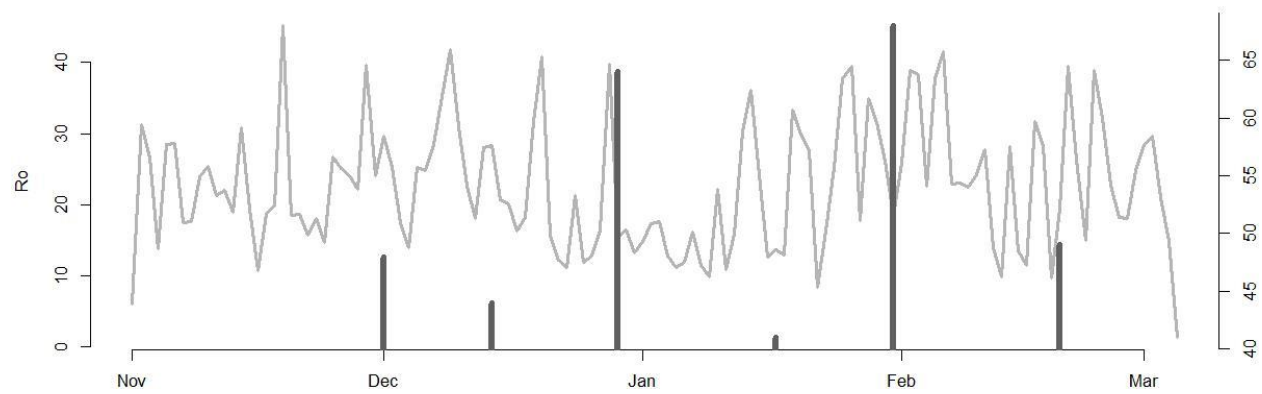
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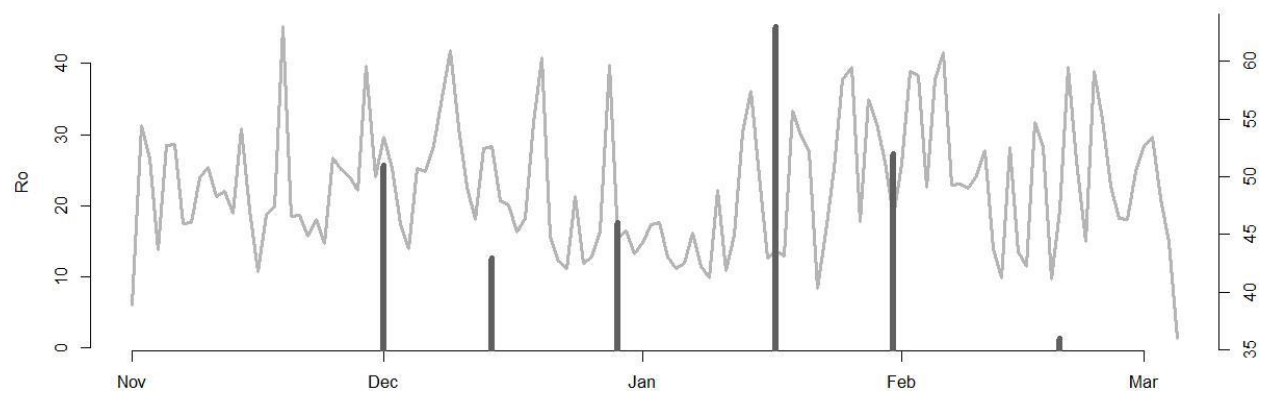
Ricran1:



Sapallanga1:



Sapallanga2:



## 6. Validación final con el uso de la relación entre Parámetros de vida y Capturas

Se puede observar que hay una relación directamente proporcional entre los parámetros de vida estimados y el total de capturas (de todas las localidades evaluadas), Si bien la relación es ligera dado las causas de error normal o ruido (error de lectura del sensor, registros sesgados en las capturas, etc.), se ve que en las 3 especies mientras que el  $R_0$  incrementa su valor las capturas aumentan. Por lo que ILCYM puede generar predicciones útiles para contrarrestar el riesgo de infestación de estas plagas de papa.

